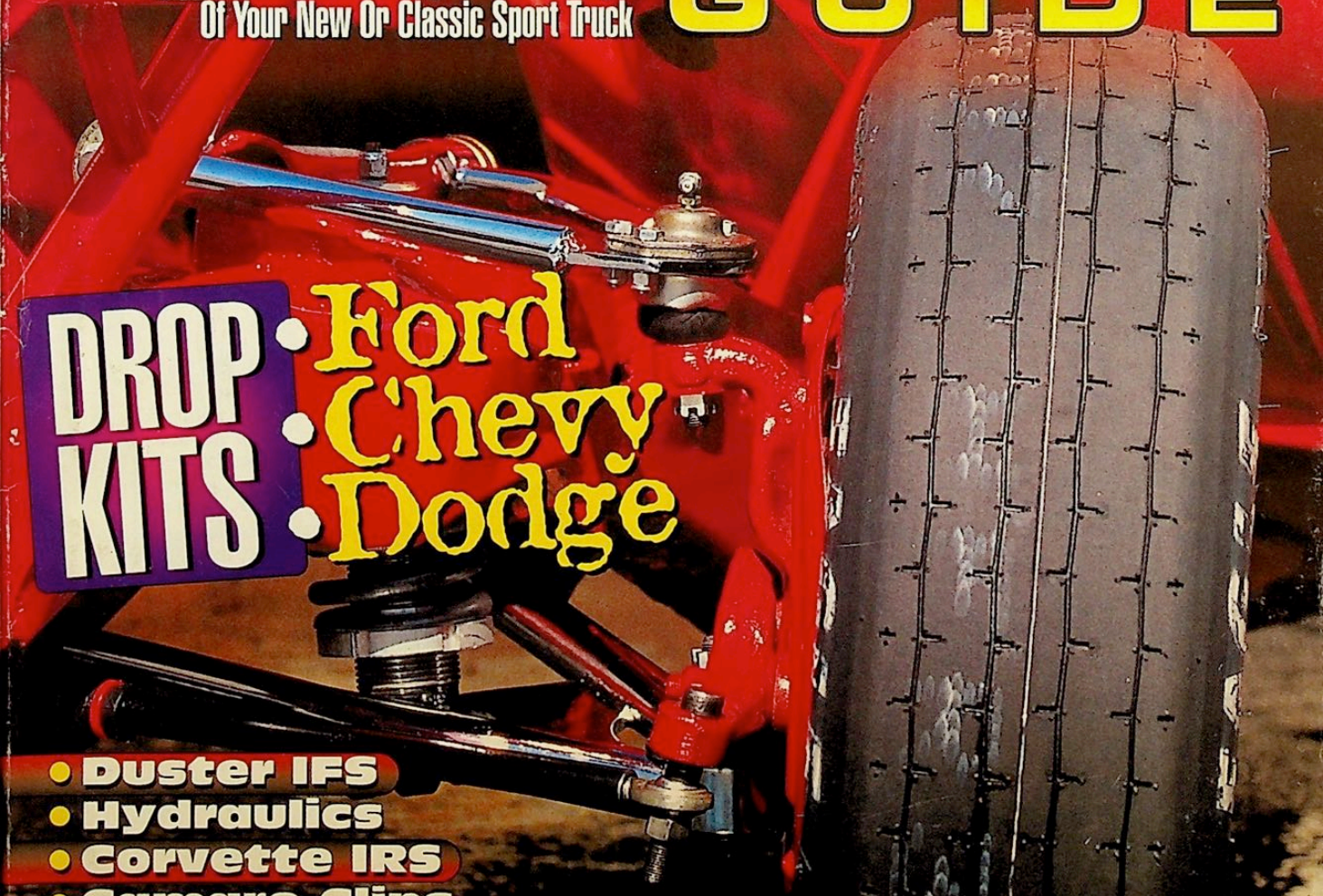
FROM THE EDITORS OF Truckin'

SUSPENSION GUIDE

The Complete Guide For Altering The Ride Height Of Your New Or Classic Sport Truck



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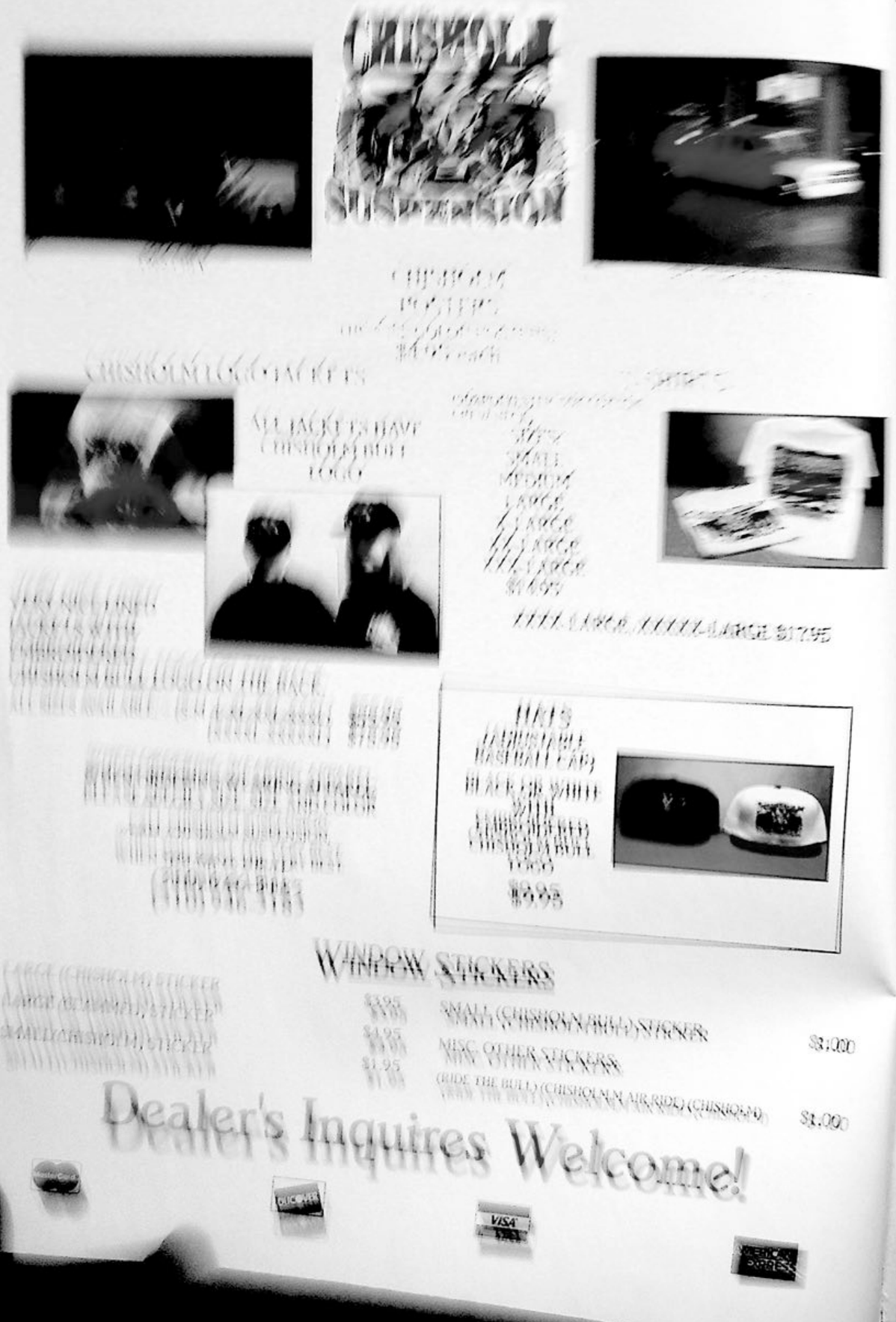

POINT OF VIEW

The ultimate guide to properly altering the ride height of your soon-to-be-customized truck!

BY STEVE STILLWELL

Words on the cover of any magazine are commonly known as *blurbs*. In the industry, we call 'em *buzz words*. They are the little quips that instantly reveal to the potential buyer of a product, be it a magazine or box of cereal, what to expect from its contents. There are several key buzz words on the title of this very special magazine, from those at the top — *From the Editors of Truckin' Magazine* — to *Suspension Guide* and *properly altering*.

By now you have had the opportunity to peruse the pages of this *Truckin'* Magazine Special and already know its topic and contents. However, there are some points of interest I'd like to address. I began working on *Truckin'* Magazine way back when the first issue was produced with a cover date of Summer, 1975. Interestingly, the readers of the very first issue of *Truckin'* and the guy buying the latest issue still have the same major questions. How do I lower my truck? What's the best way? What's the most economical method?

Back in 1975, long before anyone called a pickup a sport truck, lowering was generally accomplished the easy way. You set a pair of blocks underneath the frame, lit up the rosebud tip of a torch, heated the coil springs until they were red hot and watched the truck's ride height settle down until the frame rested on those blocks. Maybe the wheels were realigned, maybe not. It wasn't the best method, but cheap and effective. But, there were major drawbacks, especially when the springs — now with all of their weight-holding capabilities forever gone by the loss of temper — continued to settle and sag. Soon, the bump stops were your suspension. It looked great but the ride was rough and the ball joints and tie-rod ends took a beating!

During the early eighties, about the same time the *Truckin'* staff coined the phrase *sport truck* to differentiate customized new-model pickups from classics, an imagineer came up with the brilliant idea of cutting up four stock spindles to make two. Alas, the very first of the soon-to-be, very popular bolt-on suspension drop. In fact, this lowering method led Chevy to the top of custom truck popularity. This idea was soon followed by the development of forged aftermarket spindles, custom A-arms and so on. Oh yes, there were other kits for relocating the ball joints and such, but they never took off like the bolt-on spindle and tubular A-arm.

Back to those *buzz words*. I have to include "From the Editors of *Truckin'* "for a very good reason. Eliminate the number of letters we receive concerning suspension modifications and our mail will be cut by more than thirty percent! As a reader of *Truckin'* Magazine you have played a major role in the selection of the articles used in the composition of this magazine special. Truth is, we hand selected those articles which have proven to be the most popular suspension related articles from 1992 through 1995, along with a host of new suspension articles concerning everything from the latest on air bags to the cutting-edge lowering of the all-new 1997 Ford F-150.

To wrap it up, the last of the key buzz words would have to be *properly altering the ride height of your truck*. Everything, from the brake articles to the suspension modifications depicted in this special, is presented to you in hopes of assisting you in making the proper selection of products and methods for personalizing your truck's ride height. Truck enthusiasts are looking for just that right stance and performance enhanced suspension which will deliver the desired results without compromising safety, handling and comfort. Best part is, lowering your truck can now be done in a matter of hours and at a reasonable cost.

Then again, if nothing short of a Corvette independent ride will cure your customizing itch, you will find a detailed article to guide you, along with a hydraulics install and the tandem trick as well as many more custom tricks. Enjoy!

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At the forefront of our Suspension Guide is Chisholm Suspension's trick race truck rolling chassis which typifies the creativity of today's suspension modifications. Photography by Shaun "Turbo" Carlson.

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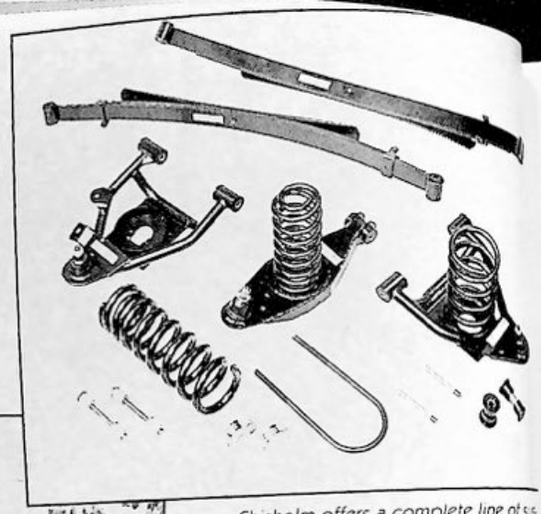
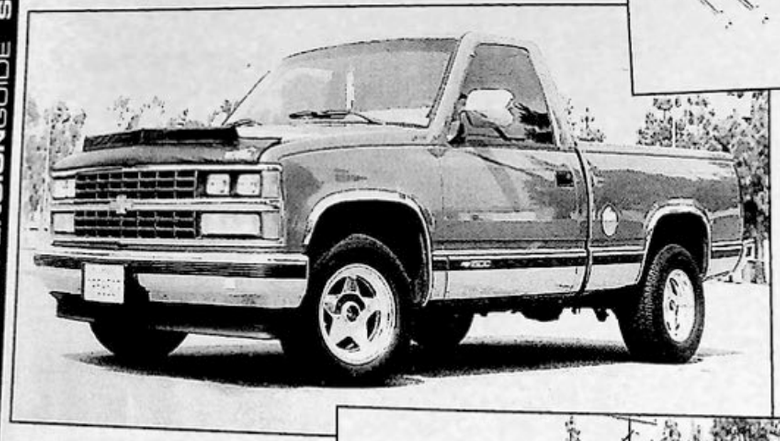
SIMPLE SLAM

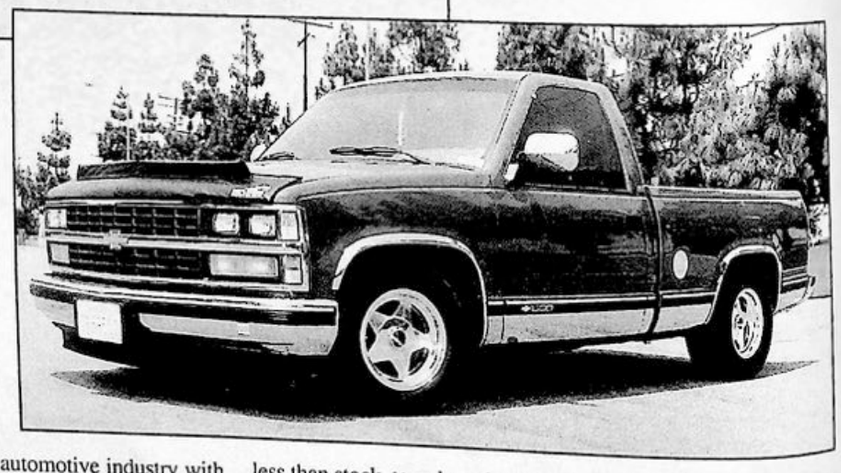
Chisholm's easy-to-install lowering products





Chisholm offers a complete line of suspension products for a variety of trucks including lower coil springs, lower control arms and lower leaf springs.

BEFORE



AFTER

BY JIMMIE O'DELL
PHOTOGRAPHY: JIMMIE O'DELL

Chisholm enters the performance automotive industry with an impact, by introducing a unique line of suspension accessories designed especially for lowering and improving the ride on mini and full-sized trucks. Chisholm's new product line features computer-designed lower control arms which are available in numerous applications, including the popular, full-size GM trucks. Chisholm has also developed a unique solution to lowering the rear of both mini and full-size trucks by introducing their replacement leaf springs. The leaf springs are designed to OEM specifications, but with less arch and a shorter main leaf. All the products can be shipped via UPS, and can easily be installed by the average backyard mechanic in a few hours.

Chisholm offers their lower control arms in two different heights to drop the front end of the full-size GM trucks either two or three inches. The Chisholm two-inch model proves to be the most versatile of the two, featuring the coil spring pockets tucked up high, well above the much-feared scrub line. Combined with the Chisholm three-inch lower spring, a full-size GM truck can be slammed a total of five inches in a matter of minutes.

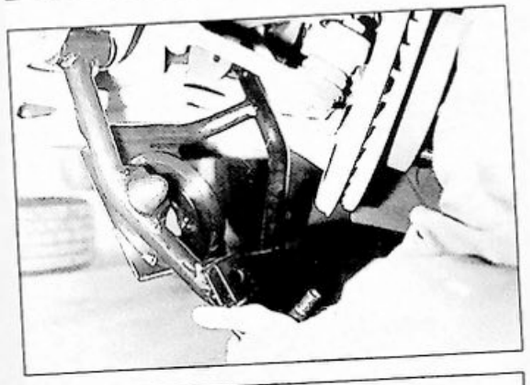
The Chisholm lower control arms are constructed using three sections of 1-1/4-inch, .095-inch thick tubing, weighing much less than stock, to reduce the unsprung weight. After being welded together, each Chisholm lower control arm is bead blasted and then corrosion protected with a black powder-coated finish. Each Chisholm lower control arm comes complete with a replacement OEM ball joint and grease boot installed (eliminating the worry of damaging the stock ball joint or boot during removal), as well as grease fittings for both bushings and ball joint.

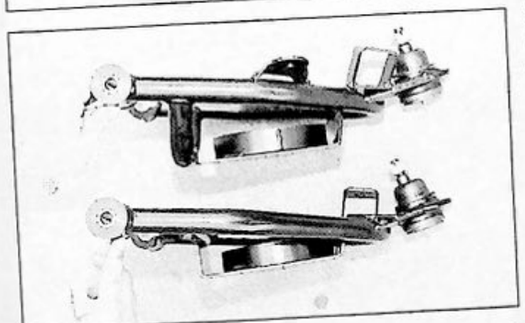
Chisholm teamed up with Energy Suspension to specially design a line of graphite impregnated polyurethane bushings to meet Chisholm's specifications. The bushings incorporate multiple grooves cut lengthwise, permitting grease penetration, while also preventing excessive wear and squeaking. Chisholm control arms are available for the 1988-92 GM 1500, 2500 or 3500; GM S-10, S-15 trucks, as well as the Dodge Ram 150.

For an additional drop in the GM truck's front end height, Chisholm offers three different coil springs, coming in one, two, and three-inch lower heights. Chisholm designed the coil springs to improve the Chevy truck's ride by specially winding the lower portion of the coils with a progressive wind, and then had each shot peened to retain their strength. When on the road, the lower portion of the coil absorbs the smaller bumps without disturbing the ride. Once the coil's lower portion overloads, the force transfers upward, being absorbed by the top portion of the spring. Chisholm offers a huge assortment of coil springs to suit most every mini and full-size truck application.

Raise the truck's front end, supporting each side with jack stands beneath the frame. Remove both wheels, disconnect the lower ball joint from the spindle by loosening the nut and tapping the spindle with a large hammer.

Remove the nut and carefully force the stock lower control arm downward, relieving tension from the coil spring with a long object (like a long handled hammer). Remove coil spring and both pivot bolts, then remove the control arm.





Install the Chisholm lower control arm, inserting both connecting bolts. Both the Chisholm two-inch and three-inch lower control arms come with bushings, ball joints, boots and grease fittings installed.

Tape the rubber grommet to the top edge of the coil spring to make the installation much easier, ensuring the grommet does not shift during installation.

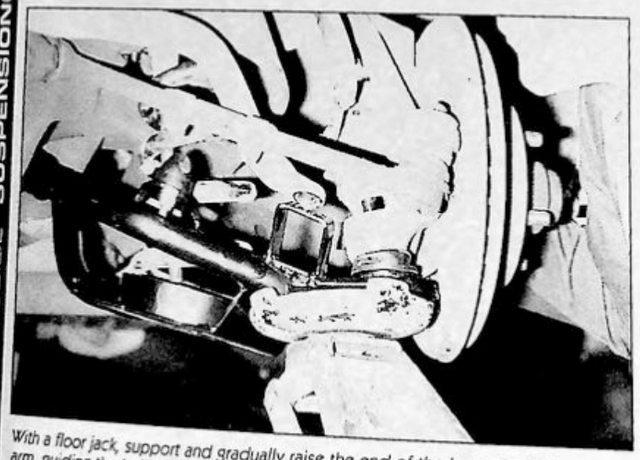
For the rear of both mini and full-size trucks, Chisholm developed a unique solution to lowering, by developing a line of replacement leaf springs designed to OEM specifications. The leafs are designed with less arch and shorter main leaf springs to retain the truck's factory ride by positioning the rear shackle in its stock five-degree angle. The Chisholm replacement leaf springs also utilize an overload leaf to retain the stock payload, and bolting up to the stock hangers and shackles. The Chisholm lower leaf springs are available in a choice of two different bolt-on applications for lowering the full-size Chevy truck's rear end either five or six inches.

To accomplish a five-inch drop at the rear, the leaf springs simply need to be replaced and a shorter bump stop installed. For a six-inch drop, Chisholm recommends a "C" notch to the rear frame for additional travel and clearance. Chisholm replacement leaf springs are available for all 1988-92 full-size GM trucks, as well as the GM S-10 and S-15. Contact Chisholm for more information on the numerous other lower leaf spring applications they offer for other mini and full-size trucks.

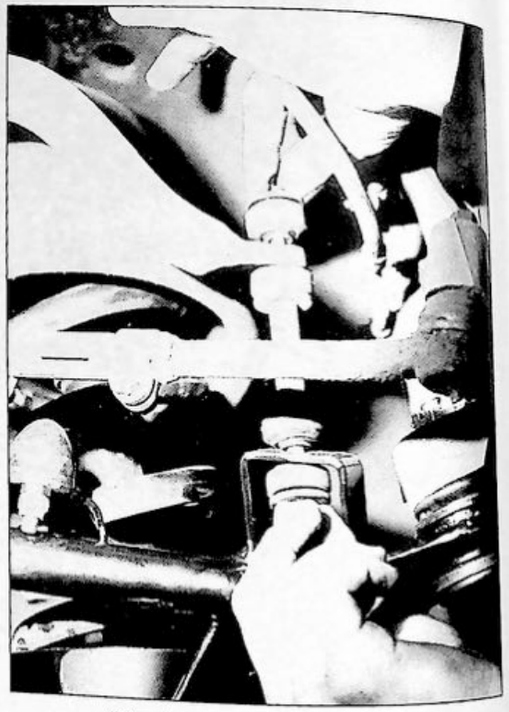
Chisholm installed a pair of their three-inch lower control arms and five-inch lower leaf springs onto a full-size Chevy 1500. The installation took only a little over two hours and required only an average set of hand tools. Once the installation was complete, the truck took on a very presentable lowered stance, filling the void beneath the wide-open, front and rear wheel wells.

We hit the road for a quick evaluation of the truck's newly lowered ride, which included a series of railroad track crossings. The Chisholm lowered Chevy rode smoother and handled better than stock, even with the stock shocks and stock front coil springs. The truck's steering responsiveness and turning radius was vastly improved, too, especially when compared to other trucks lowered without the Chisholm products. At the rear, the Chisholm five-inch lower replacement leafs worked great, without ever bottoming, even over the railroad track crossings at 60 mph! For an affordable alternative to mini and full-size lowering, the Chisholm suspension products might be just what you're looking for. →

Chisholm recommends using a spring compressor when installing the front coil springs. The compressor tilts the spring when tightened to aid in seating the top edge of the coil in the frame spring pocket.



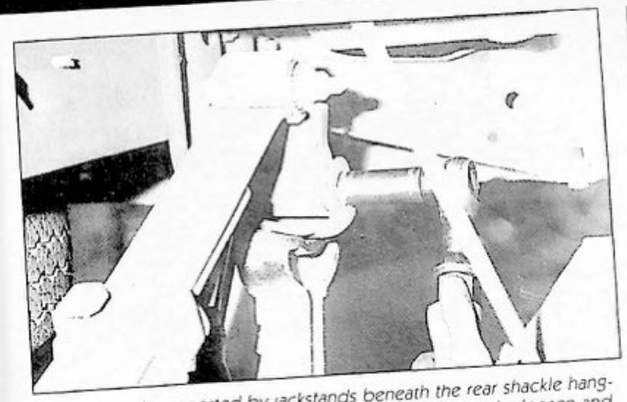
With a floor jack, support and gradually raise the end of the lower control arm, guiding the ball joint into the spindle. Install and tighten the ball joint nut and insert cotter key.



When installing the end link assembly, invert the bolt when routing it through the lower control arm and stock anti-sway bar so the nut is positioned upward

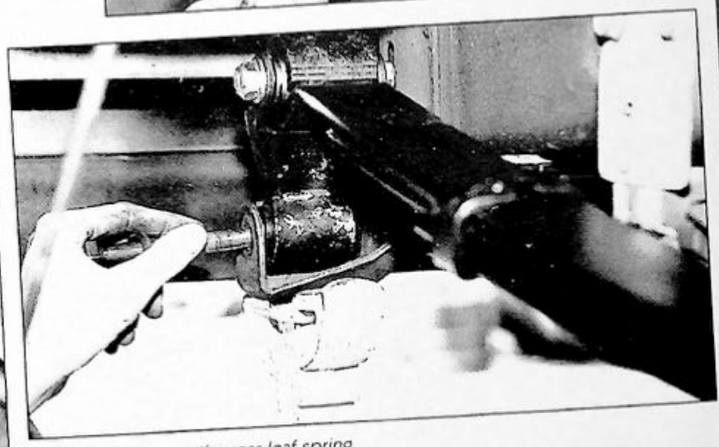
Install the shock absorber with the provided bolts.

Mark the tie rod at the adjuster with a soap stone, loosen the two pinch bolts and turn the adjuster inward one complete turn. Retighten the pinch bolts. Chisholm feels this adjustment is close enough to get you to the alignment shop.

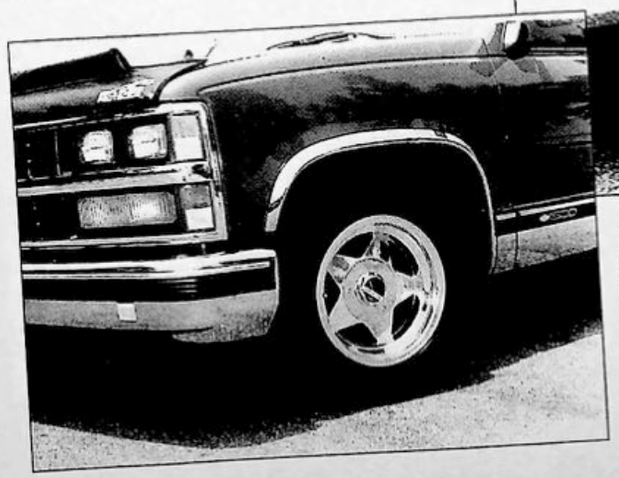


With the truck supported by jackstands beneath the rear shackle hangers, and a floor jack supporting the center of the rear axle, loosen and remove the lower bolt connecting the rear shackle to the frame mount. Then loosen and remove the bolt from the front leaf spring hanger.

Remove the nuts and U-bolts connecting the leaf springs to the rear axle.



Lift out and remove the rear leaf spring.



With the Chisholm three-inch lower control arms attached at the front, and the five-inch lower leaf springs installed at the rear, the full size Chevy half-ton pickup has taken on a very respectable appearance.

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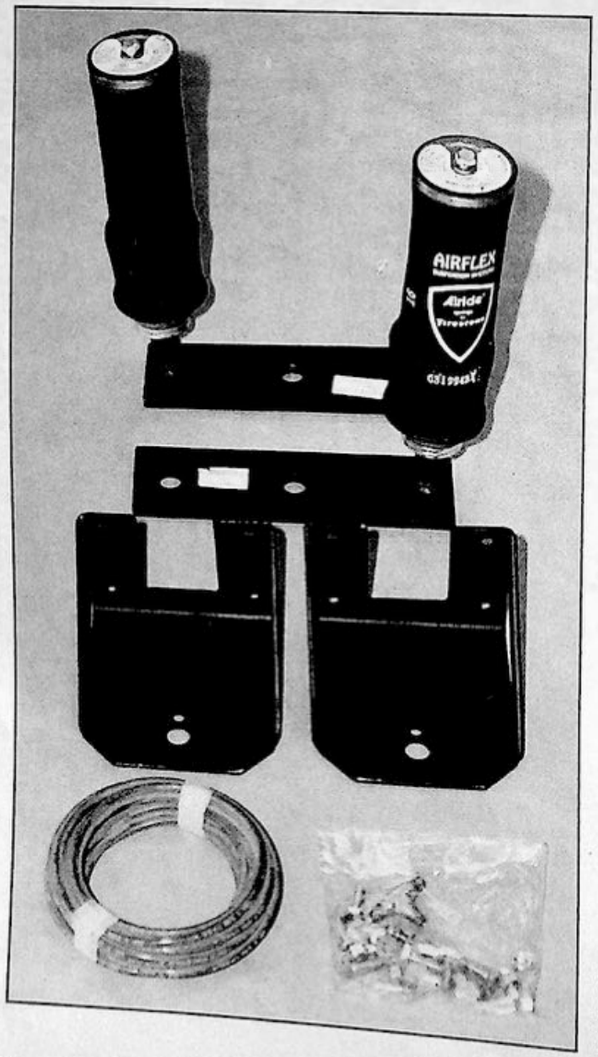
UNDER PRESSURE

An Easy-To-Install Air Bag Kit For Early Chevy Trucks



The kit contains two Air Flex air bags by Firestone, custom mounting brackets, flexible air hose and brass O-ring fittings.

BY BRIAN McCORMICK

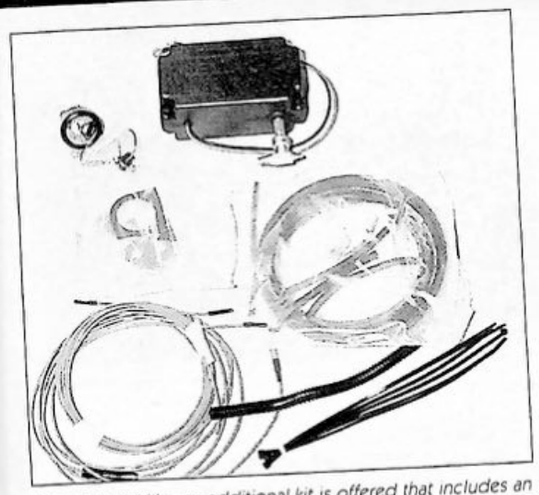
Point blank, air bags have become almost manditory on any lowered truck these days. It seems like everyone we know has some form of air-assisted suspension products on their lowered trucks. It makes sense because more and more people are doing more than just driving their rides, they're filling the bed with weight, towing trailers and just generally increasing the payload of the truck, resulting in a need to assist the suspension load and improve the ride.

Well, if you are a late-model truck owner, installing a set of air bags onto your truck has been easy because the bags come in a kit. But, if you own a '67-72 Chevy truck with a trailing arm suspension, you had to construct your own air bag setup to fit.

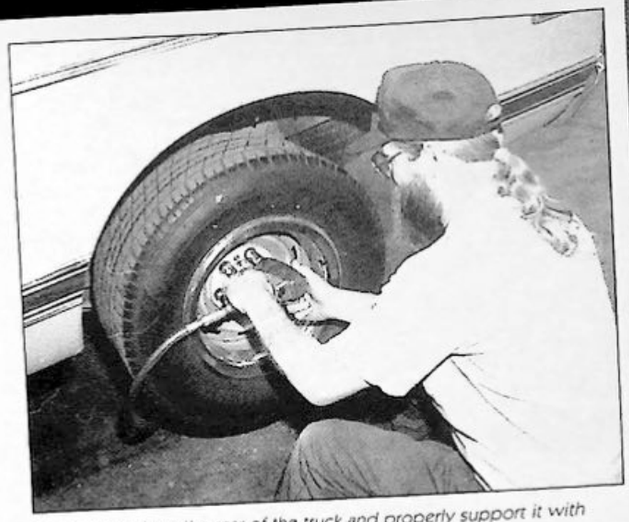
Not anymore. Golden State Pickup Parts has just released a great new air bag kit exclusively for the early trailing arm trucks that simply bolts to the frame and connects between the trailing arm and shock plate. This positions the Air Flex air bag aft of the rear axle and close as possible to the wheel for optimum weight control.

Golden State Pickup Parts has taken the time to design some very unique mounting brackets that make the whole process possible. In addition, the kit comes with a set of Air Flex air bags, air hose and the required brass fittings to get the job done. If you would like to upgrade the system further, an additional kit has been assembled that features an onboard compressor, extra hose, wire, control switches and a pressure gauge to control the air ride system from the driver's seat.

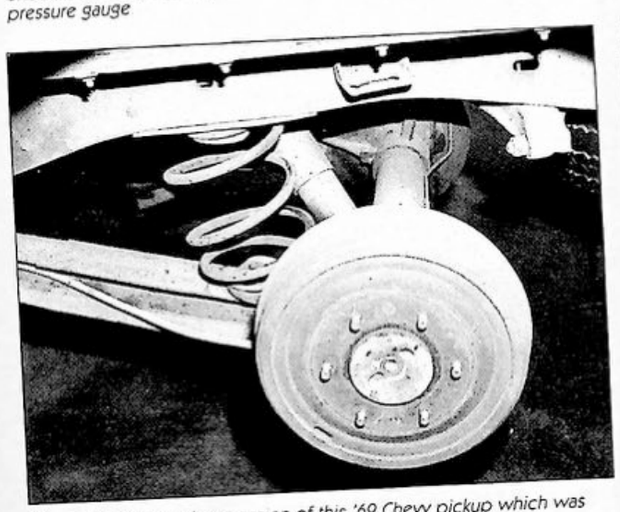
You won't believe how easy the kit is to install. Just follow along and see for yourself, then call Golden State Pickup Parts or Classic Performance Products for your own kit.



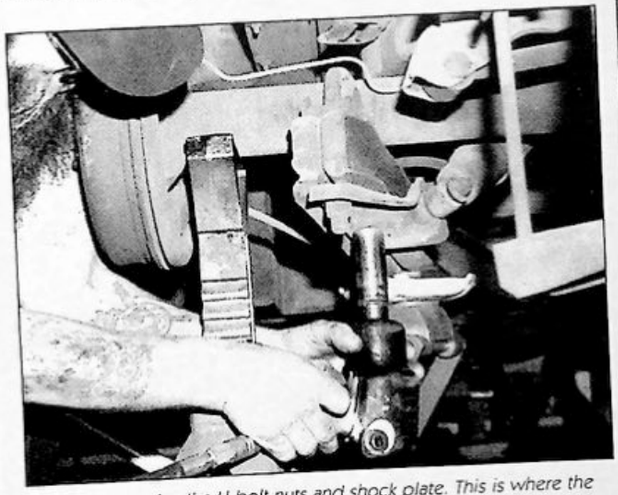
If you would like, an additional kit is offered that includes an onboard air compressor, extra air hose, switches, wire and a pressure gauge.



To begin, jack up the rear of the truck and properly support it with sturdy jackstands. Then, remove both rear wheels.

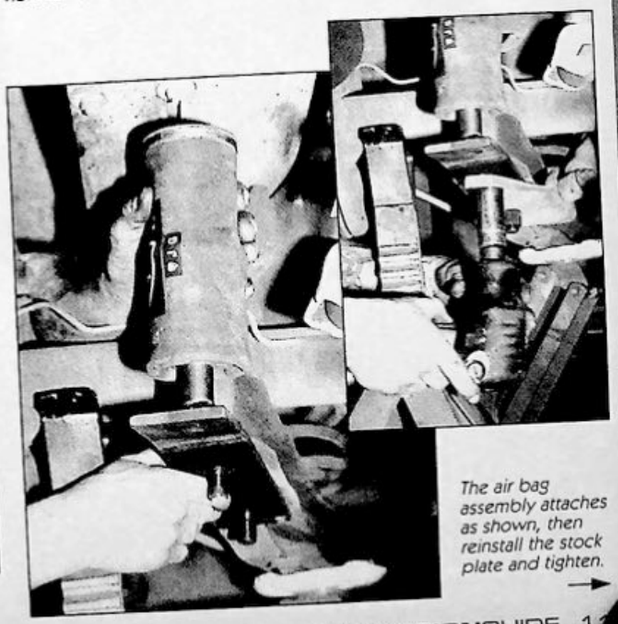


Here is the lowered suspension of this '69 Chevy pickup which was not included in any manufacturer's air bag kit forum until now.



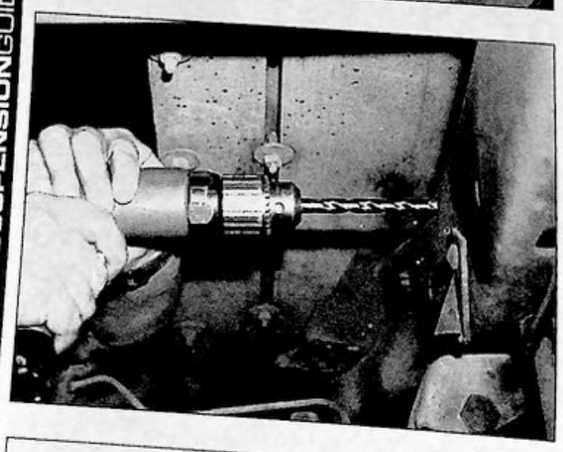
Begin by removing the U-bolt nuts and shock plate. This is where the new lower air bag bracket will mount.

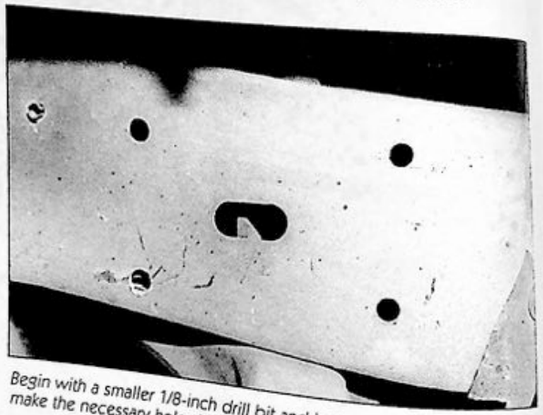
If your truck isn't lowered, you will want to mount the bracket on top of the trailing arm instead of underneath, as for a lowered suspension.



The air bag assembly attaches as shown, then reinstall the stock plate and tighten.

The upper air bag bracket is then placed in position on top of the air bag and mounting holes then marked on the frame. Make sure the air bag is as close as possible to being straight up and down.



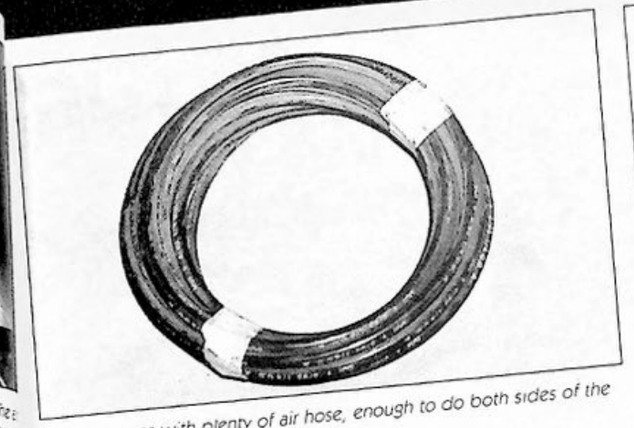


Begin with a smaller 1/8-inch drill bit and increase to a 3/8-inch bit to make the necessary holes in the thick frame rails.

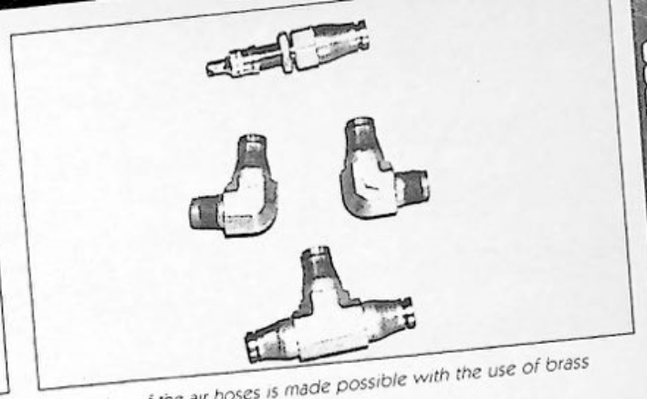
The mounting hardware is provided with each kit and is installed on the upper bracket as shown.

And now we have an air bag installed on an early trailing arm suspension thanks to Golden State.

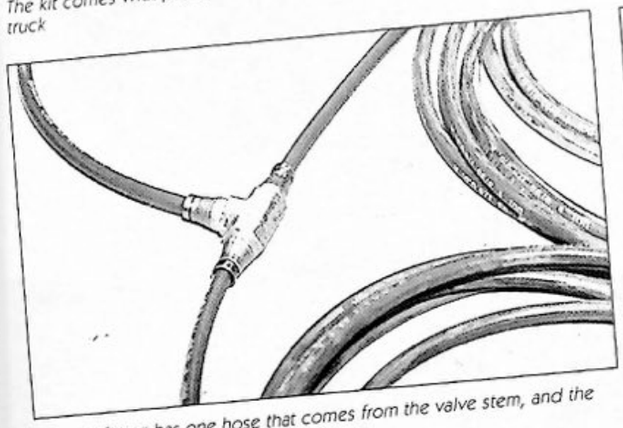
If you choose not to include the air compressor in the installation, drill a hole in your license plate bracket to house an air valve stem.



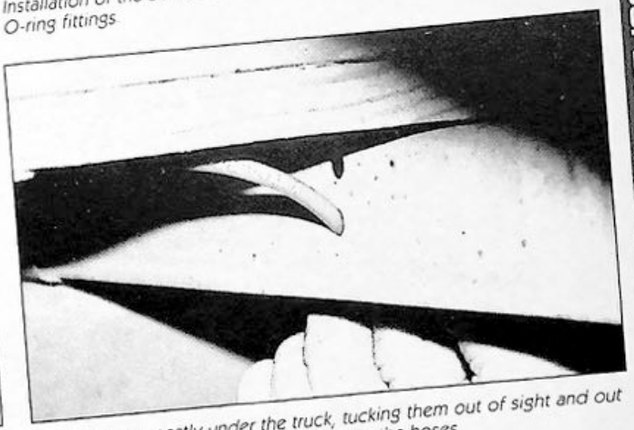
The kit comes with plenty of air hose, enough to do both sides of the truck.



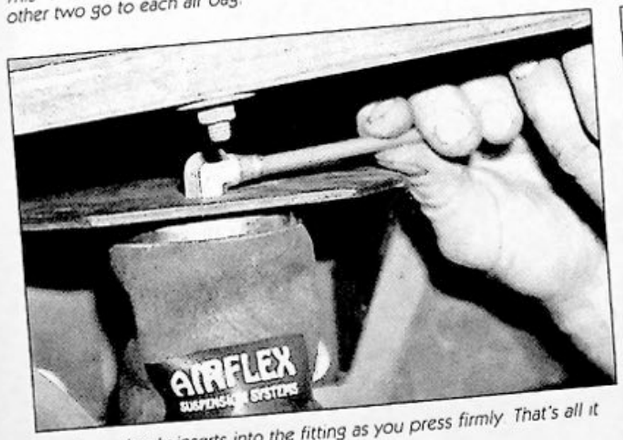
Installation of the air hoses is made possible with the use of brass O-ring fittings.



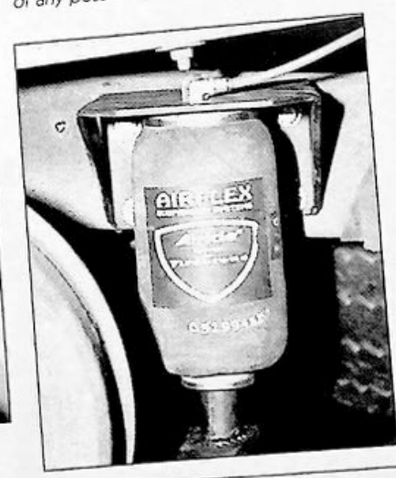
This "T" fitting has one hose that comes from the valve stem, and the other two go to each air bag.



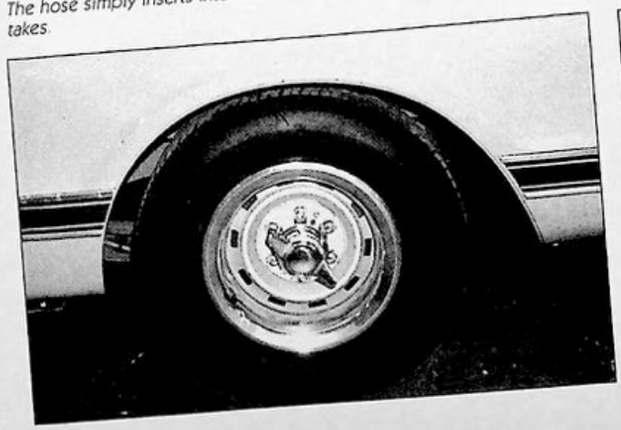
Run the hoses neatly under the truck, tucking them out of sight and out of any possible place that might damage the hoses.



The hose simply inserts into the fitting as you press firmly. That's all it takes.



And there you have it, air bags on an early truck. It is best to always keep around ten pounds of air in the bags at all times.

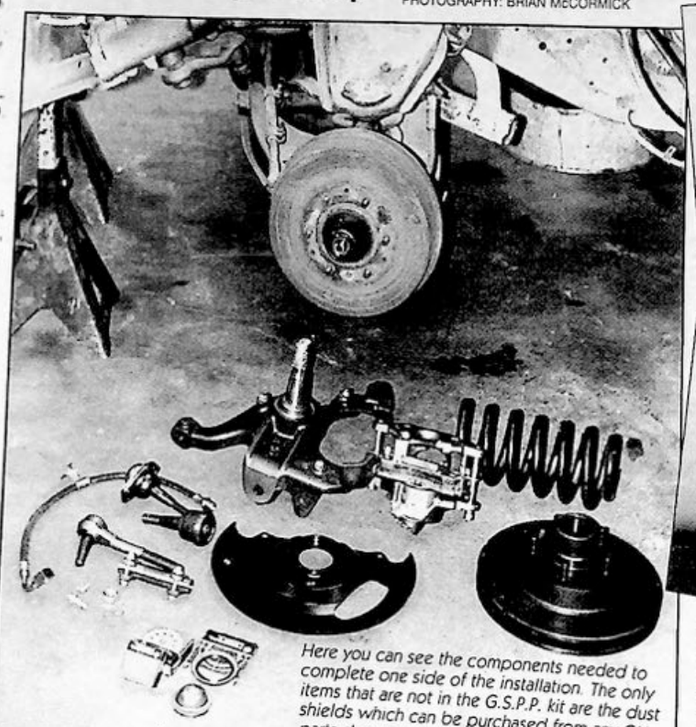


With this particular application, this truck could be raised three inches with the use of only 30 pounds air.

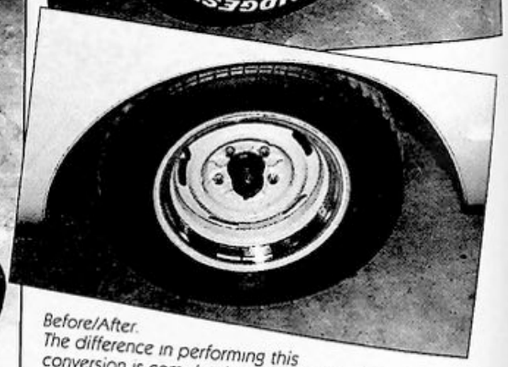
Golden State Pickup Parts shows how to upgrade your '67-70 Chevy brakes and suspension for the complete setup

REPLACE YOUR DRUMS WITH DISCS, THEN ADD A DROP

BY BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK



Here you can see the components needed to complete one side of the installation. The only items that are not in the G.S.P.P. kit are the dust shields which can be purchased from any GM parts department or auto store.



Before/After.
The difference in performing this conversion is completely beneficial. Besides improved stopping power, you can have a lowered stance with an outstanding ride. An economical wheel choice is these Wheel Vintique rally wheels that can be ordered with both the five and six lug patterns so that you don't have to change the rear end.

Customizing an early model pickup can entail thousands of different options, all of which suit our needs or cosmetic desires. Generally though, the mission of personalization revolves around upgrading along with the addition of luxury.

On the '67-70 Chevy and GMC pickups, there is one enhancing option that most people fail to take into consideration or don't have the resources or guidance to accomplish. This task I'm speaking of is the conversion from front drum brakes to disc brakes using OEM products. Many enthusiasts desire the option of disc brakes over drums, mainly for improved stopping performance, but also because this conversion will allow them to install dropped spindles and other bolt-on lowering products. Let's face it, front drum brakes on the '67-70 Chevy trucks limits our personalizing options. By converting to disc brakes, you have a better selection of wheels to choose from, a larger selection of suspension modifications, and improved performance with power brakes being a big bonus. The power brake portion of the installation uses all OEM components and some trick new brackets to really make this installation successful and complete.

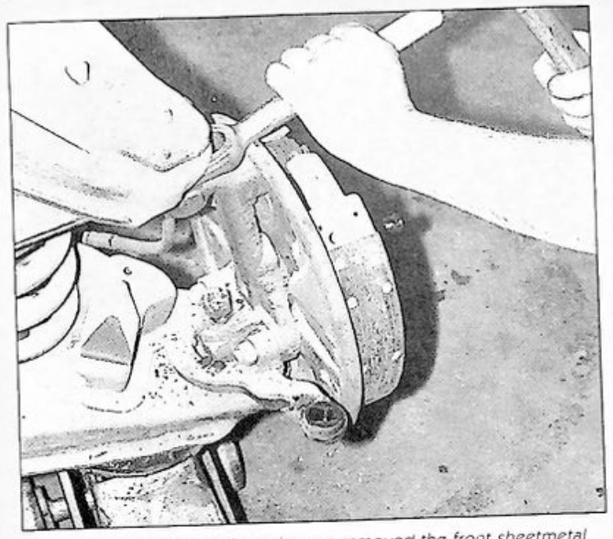
Until lately, it was difficult to tackle this job because no one had a kit available that would make the installation easy. Golden State Pickup Parts and Classic Performance Products, suppliers of a variety of classic Chevy and GMC components, have recently assembled a kit that allows enthusiasts to convert their '67-70 pickups over to power disc brakes while also creating the option for incorporating dropped spindles and short coil springs to lower the front suspension to a road hugging height.

EDITOR'S NOTE:
SAFETY SHOULD BE OBSERVED WHEN WORKING ON A VEHICLE WITH THE WHEELS REMOVED. ALWAYS WORK ON SOLID, FLAT GROUND AND USE JACKSTANDS. IF IN DOUBT, SEEK THE SERVICES OF A PROFESSIONAL FACILITY.

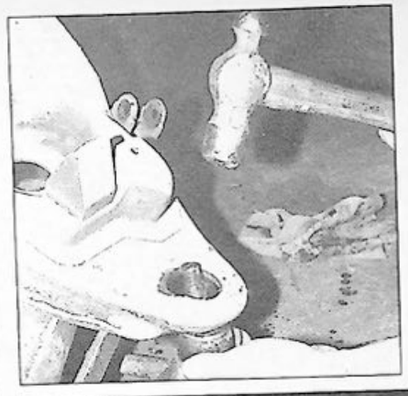
In addition to simply adding disc brakes and a lowering kit to the front of your truck, you must remember that your wheel bolt pattern will now be five-lug instead of the original truck type six-pattern. You can either re-drill the rear axle plates of the truck to the five-on-five lug pattern, install a matching rear end with the same five-lug pattern or do what we did in this case, which was to call Wheel Vintique and order a set of traditional rally wheels with the trick beauty rings and center caps for a clean look. The wheels were ordered with a five-lug pattern up front and the original stock pattern in the rear so that the project wouldn't get too expensive.

Remember, you are converting your brake system over to disc in the front and maintaining drums in the rear. A power brake assembly conversion such as what we will show you should be considered. All of the parts you would need are OEM. In fact any assembly from '71-83 can be installed depending upon your resources.

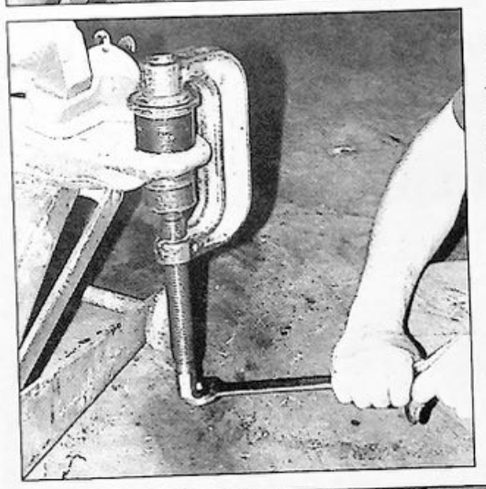
For more information concerning this installation and other related conversions we have mentioned, contact Golden State Pickup Parts or Classic Performance Products.



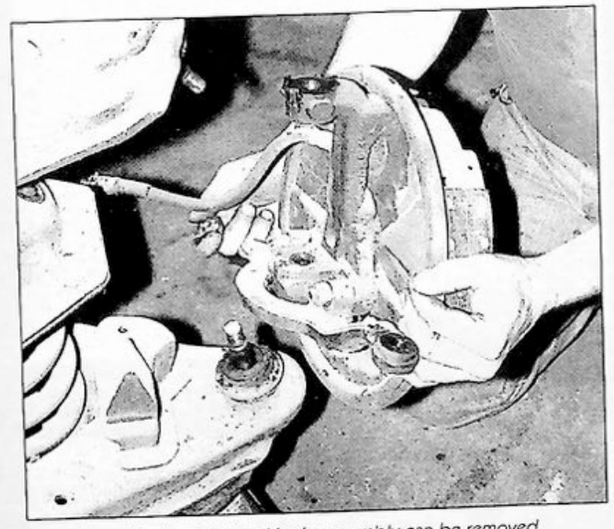
To make installation a little easier, we removed the front sheetmetal but you don't have to. To begin, loosen (do not remove) the stock ball joint nuts holding the spindle on. You will probably have to use a fork bar to get the spindle loose. For safety, release the coil pressure by keeping a jack under the lower control arm, using the truck's weight to hold the spring in place. Warning! You can be injured if this isn't done right



If your truck has the original lower ball joints, you will probably have to use a hammer to remove them

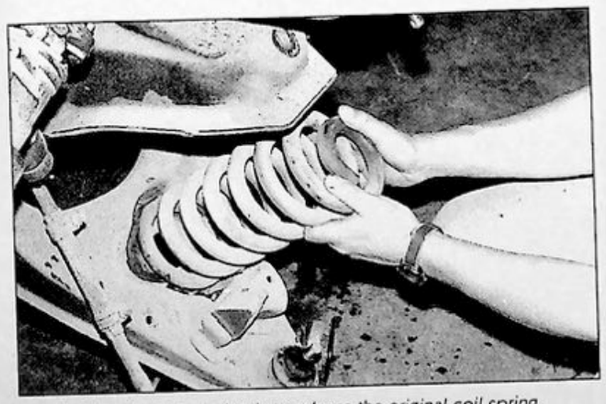


Now press the new ball joints, which are a '73-80 version, into the lower control arm



Now the original spindle and brake assembly can be removed.

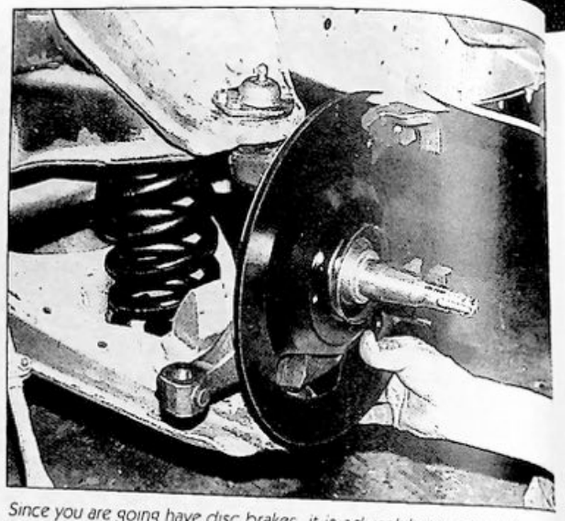
The upper ball joint is attached with factory rivets and requires an air chisel or comparable tool to remove them.



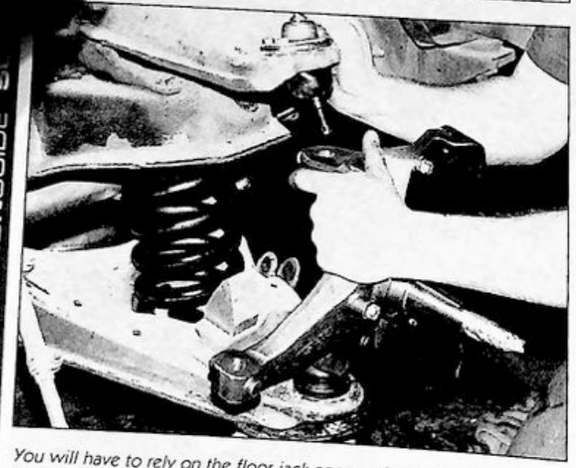
Let the floor jack down slowly to release the original coil spring.

After the old ball joint is removed, install the new version. The nuts and bolts needed are provided in the kit. →

The lowered coil spring can now be installed between the control arms. It just so happens we had a set of what we call welfare springs. That means that the owner of the truck that these springs came out of was too cheap to lower his truck the right way so he used a torch to heat the springs. This is the result. Folks, don't even think about it! Get yourself some lowered coil springs.



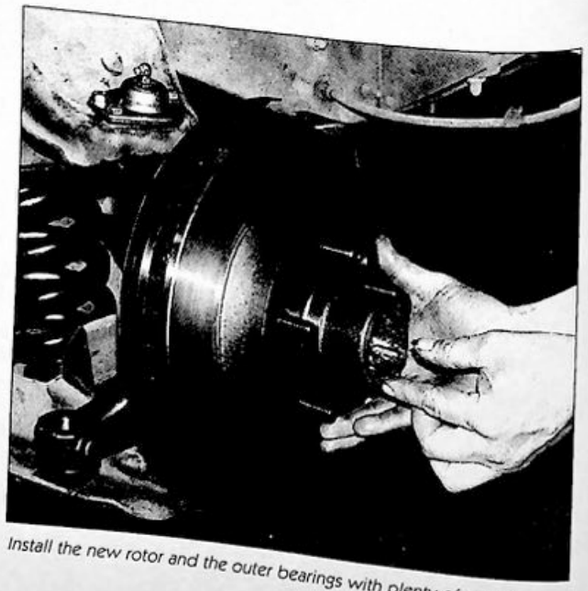
Since you are going have disc brakes, it is advisable to install dust shields. The kit doesn't provide them but you can get them from any GM parts stores. The GM part numbers are 14054937 for the left and 14054938 for the right



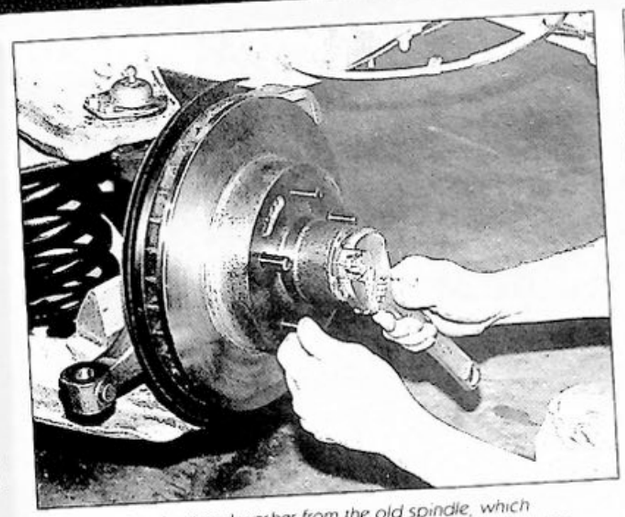
You will have to rely on the floor jack once again to press the coil spring together so that the new dropped spindle can be installed. Make sure that the coil spring is set properly into the control arm before you continue.

Now you can grease up the wheel bearings and install them into the rotor.

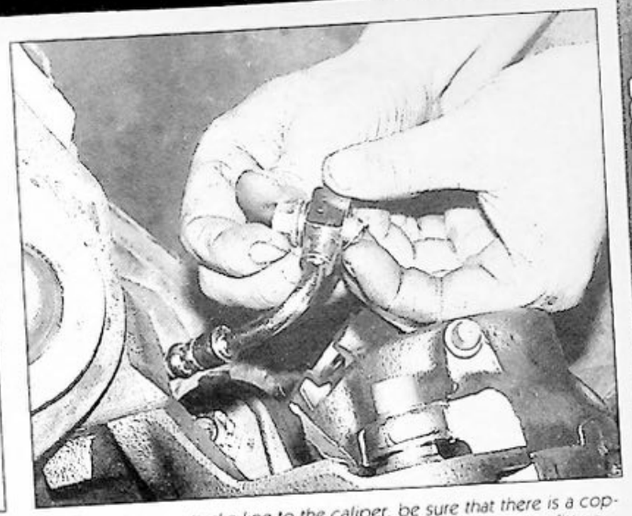
After you bolt the new spindle on, insert the cotter pins and be sure to bend one end over the nut so that the nut will have no chance of backing off.



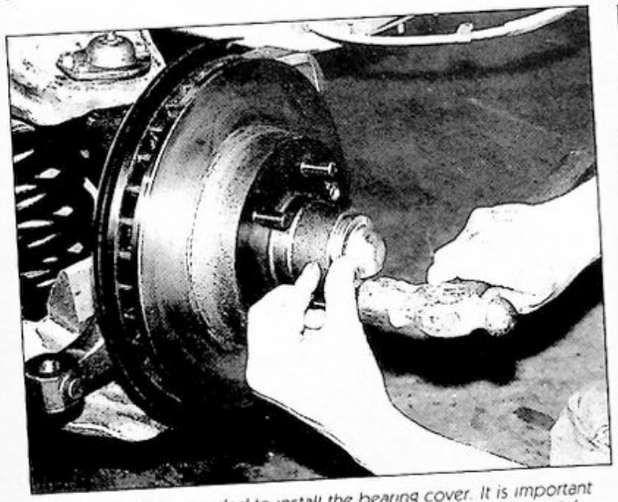
Install the new rotor and the outer bearings with plenty of grease.



Use the original nut and washer from the old spindle, which matches the bearing and axle to tighten down the rotor. A cotter pin should be installed here as well



To attach the new brake line to the caliper, be sure that there is a copper washer on both sides of the fitting. In some instances, the fitting may have to be bent slightly to clear the spindle.

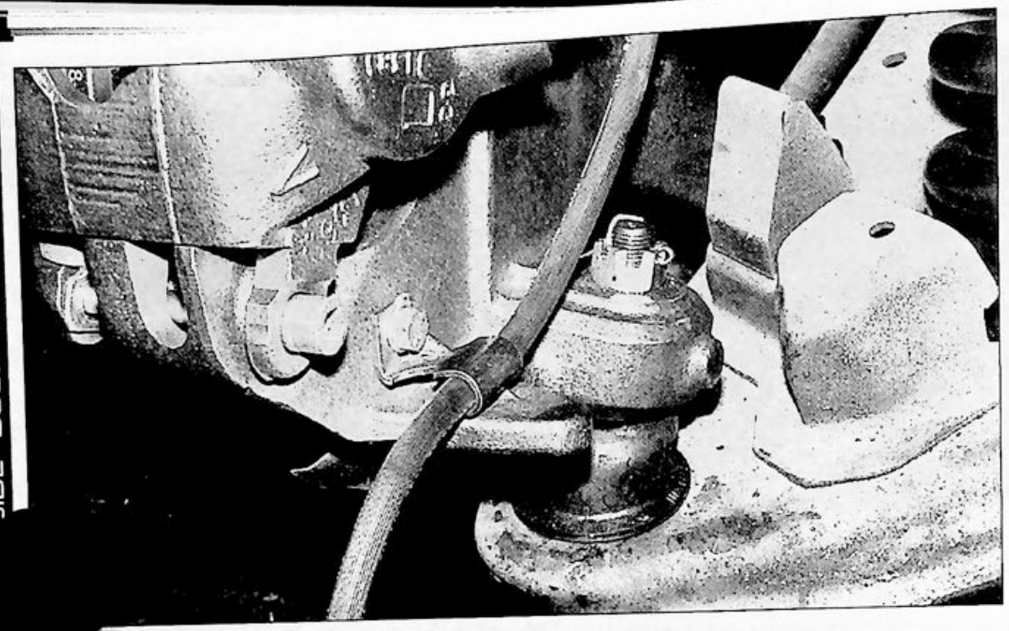


A hammer will be needed to install the bearing cover. It is important that you don't forget to put the cover on because any dirt or metal shavings can severely damage the bearings

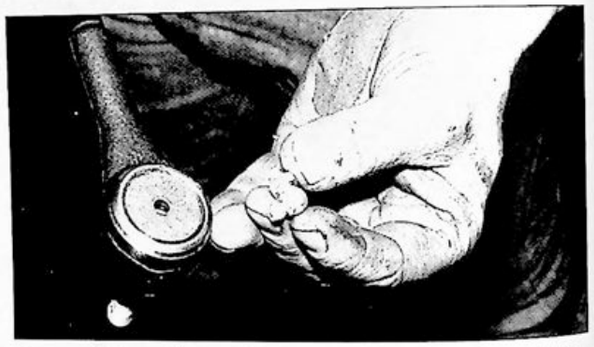
The brake fluid hose bracket that attaches to the spindle should be trimmed for a perfect fit.

Now the calipers can be bolted up. Installation of the brake calipers requires an Allen head wrench.

A cutting wheel works best to trim the edges off.



When enough excess is trimmed off, bolt the bracket to the spindle.



Because of the positioning of the old outer tie-rod end when placed on the inside, the kit provides a 90 degree zerk fitting to make lubing access much easier.

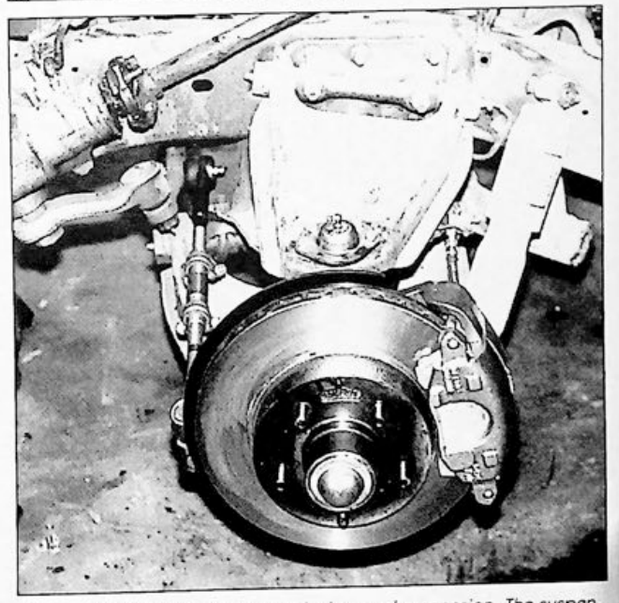
Here is where you must pay close attention to the instructions. The kit provides a new outer tie-rod end and custom-made sleeve. The old outer tie-rod end will now become the inner tie-rod end if it is still usable.

Use the new tie-rod end sleeve provided in the kit and install as pictured.

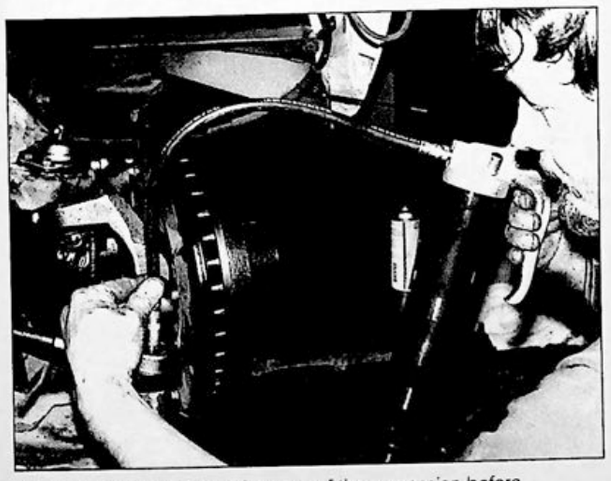
Both of the tie-rod ends require joint sleeves to retain the lubing grease.

The kit doesn't include them but it is advisable to install new shocks. In this case, a gas-magnum version is used.

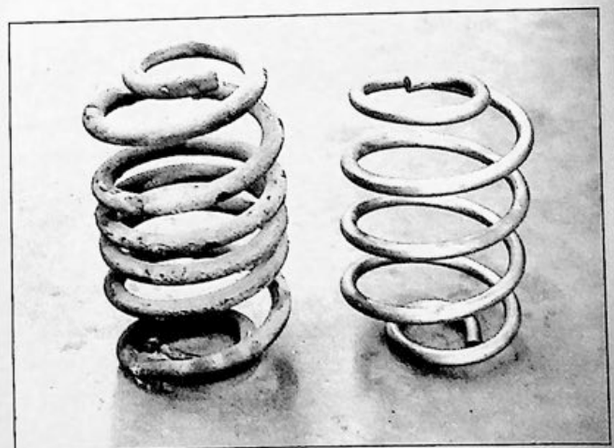
When the tie-rod assembly is complete, it can be installed with cotter pins used to secure the nuts.



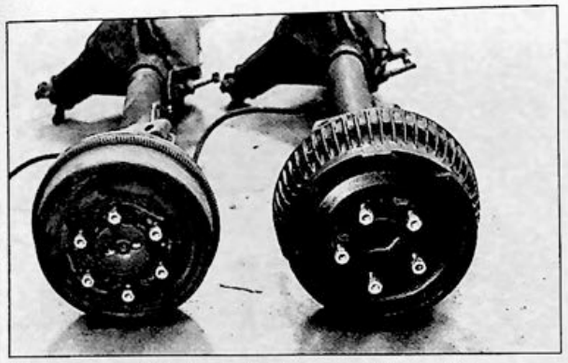
There you have it, disc brakes, and a lowered suspension. The suspension is actually lowered about 3-1/2 inches from stock. Now head to an alignment shop to insure proper tire wear and tracking.



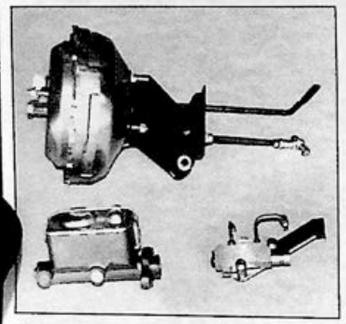
Be sure to lube all of the joint areas of the suspension before you take off down the road. Both of the ball joints and tie-rod ends require grease.



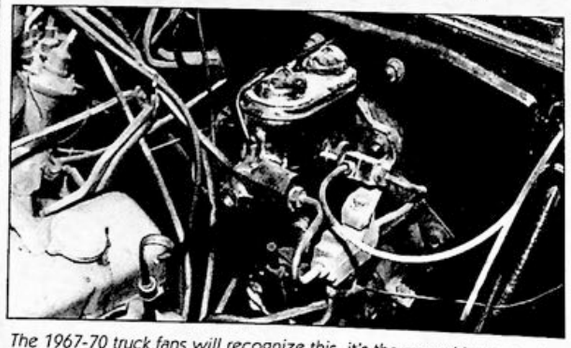
To lower the rear suspension to meet the new lowered height of the front, a set of G.S.P.P/C.P.P lowered coil springs are installed in place of the stockers. You can see the difference which is measureable to a four-inch drop.



If you choose to ditch the stock six-lug rear end to go with a five-lug rear end, a 1971 or '72 half-ton truck will provide you with a good donor rear end.

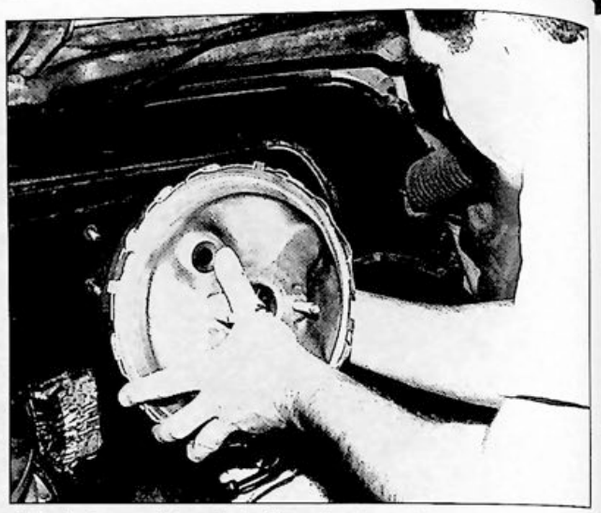


It is important that you consider installing a power brake booster, master cylinder and proportioning valve. A '73-80 version bolts-up nicely as does a '71-72 version. The only difference is that the '71-72 version requires a slightly longer thrust rod. This is the Golden State and Classic Performance Products new power brake kit that comes complete with everything you need to complete the conversion. Trust me, this setup will stop your truck very effectively!



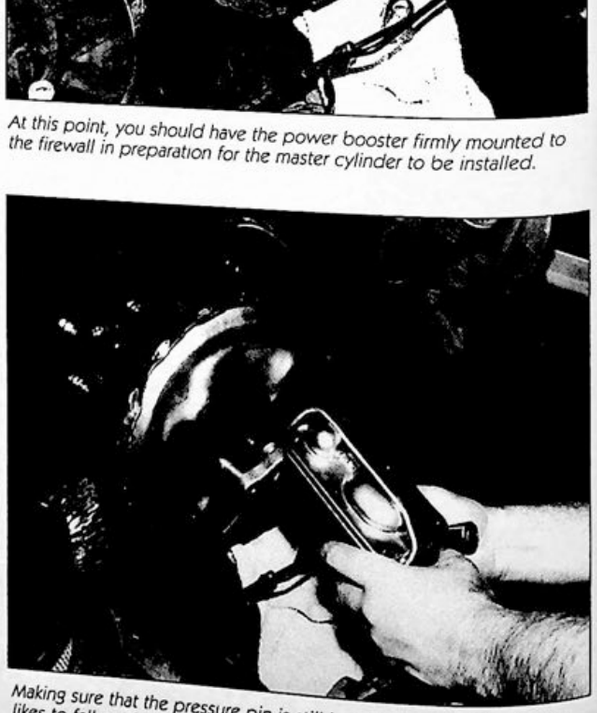
The 1967-70 truck fans will recognize this, it's the manual brake master cylinder from the stock brake system. After this truck was converted to disc brakes, we opted to convert the system over to power.

The manual master cylinder is attached only to the lower two bulkhead studs. Remove the master cylinder and the nuts attached to the upper bulkhead studs.

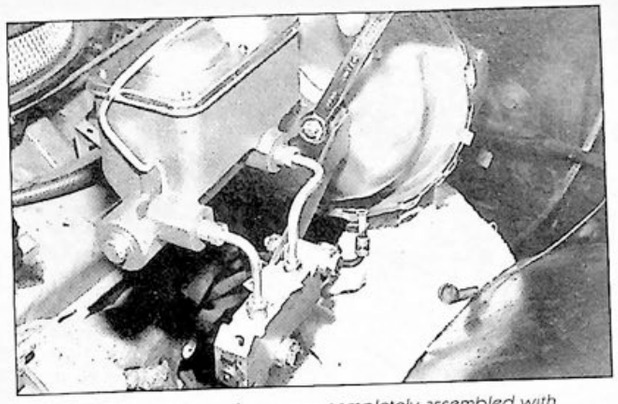


Slide the thrust rod through the firewall and attach the power booster bracket to the bulkhead studs.

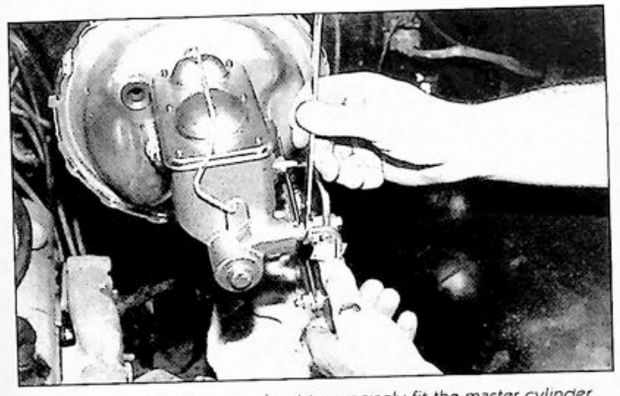
At this point, you should have the power booster firmly mounted to the firewall in preparation for the master cylinder to be installed.



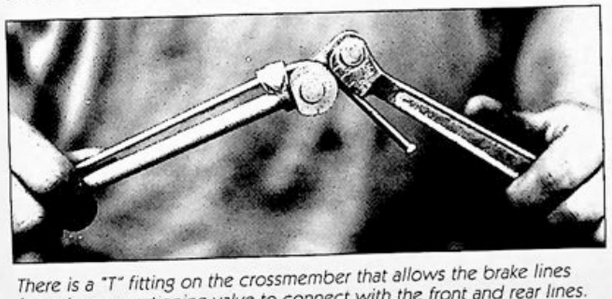
Making sure that the pressure pin is still inside the power booster (it likes to fall out if you're not careful), the new power master cylinder can be installed.



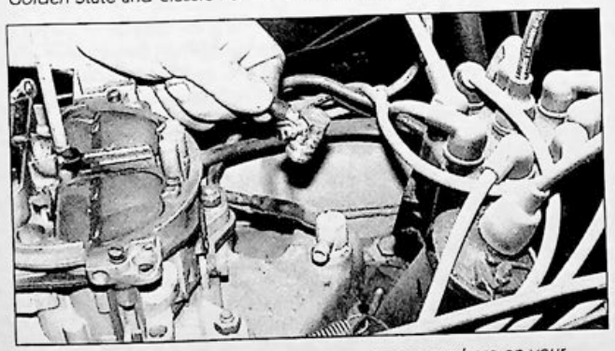
The new proportioning valve comes completely assembled with required hardlines, fittings and installation bracket assembled The mounting bracket simply slides onto the booster stud between the booster and the master cylinder.



The hardlines have been pre-bent to precisely fit the master cylinder ports. Make sure that the fittings are good and tight.



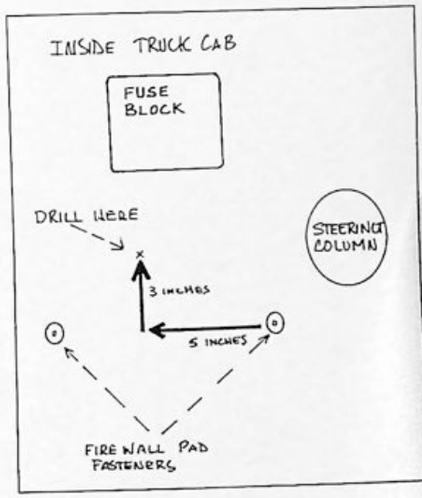
There is a "T" fitting on the crossmember that allows the brake lines from the proportioning valve to connect with the front and rear lines. You will probably have to replace the stock lines to the "T" fitting with new hard lines that you can bend up or with a braided steel kit that Golden State and Classic Performance Products offer.

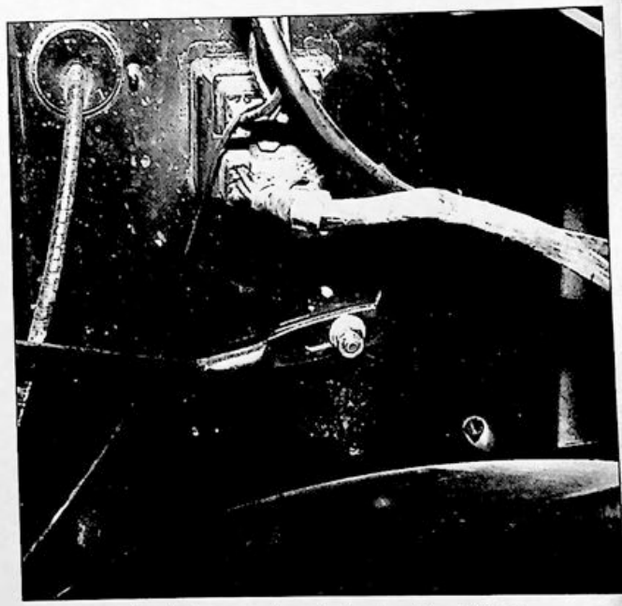


You will also need to locate a vacuum source somewhere on your engine. Many carburetors have vacuum ports on their base plates or you may want to plumb your intake with a multi-port fitting.

This is what the power brake assembly looked like from the factory in 1972. You will notice that there is a support bracket extending from the power booster bracket over to the firewall. Now, the 1971 and '72 firewall designs are different from 1967-70. The fuseblock, parking brake and speedometer cable are located in different places

This diagram shows you how to drill the bracket hole precisely where you will need to for the 1967-70 Chevy trucks. Looking from the inside at the firewall, measure over five inches from the pad fastener closest to the steering column, then measure upwards three inches and drill

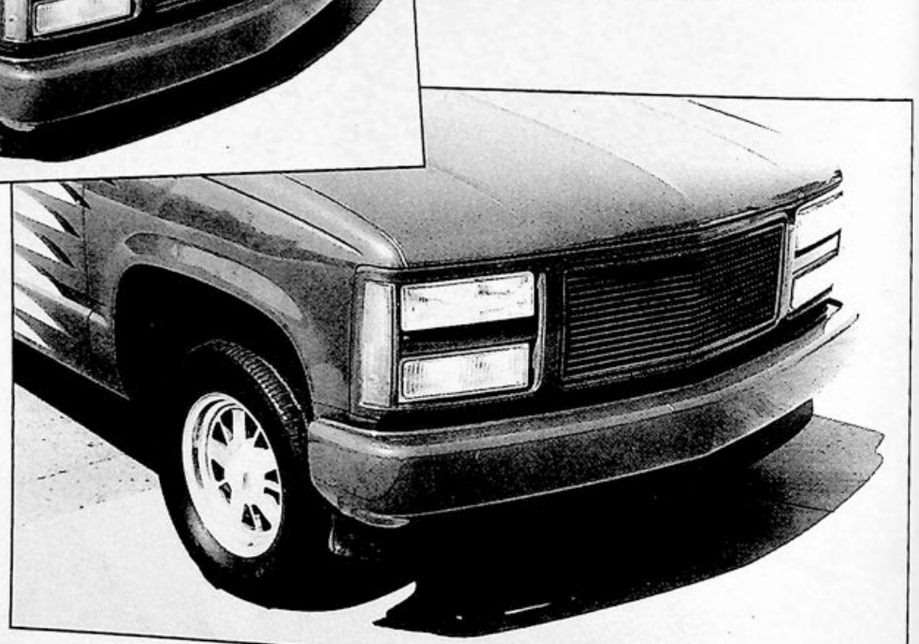




The support bracket can now be attached as shown. If you have drilled the hole properly, it should be no problem mounting the bracket.

CURB HOPPIN' HYDRAULICS

At the flip of a switch, even the most radically lowered truck can clear practically any road obstacle or hazard



Before and after. A steep driveway would normally have to be crossed in a diagonal manner, if at all. Hit the switch, the truck raises over seven inches, and can now clear short corn!

BY STEVE STILLWELL

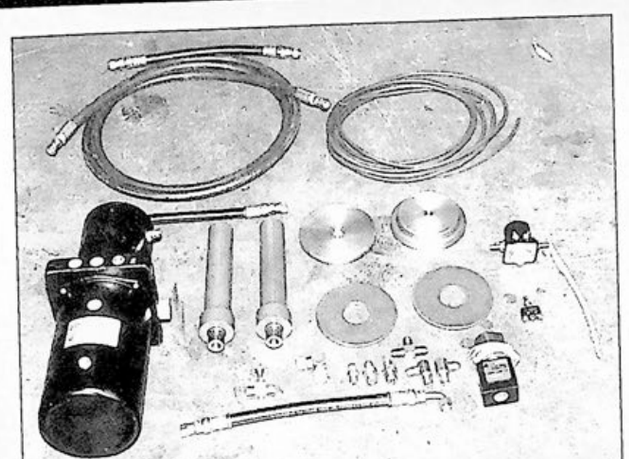
Nothing looks better than a lowered truck. On the other hand, nothing looks worse than a custom truck owner attempting to drive his lowered truck over a steep driveway entrance or speedbump while the frame bumps and grinds against terra firma. Oh sure, the first couple of times metal-meets-concrete is kinda cool. Matter of fact, the *Truckin'* Phantom left such a good rail-gnashing impression on the Wednesday night crowd at Frisco Burger, a popular cruise spot, that we made a couple of trips, just to make sure everyone heard this behemoth's frame grind. However, everything gets old, especially when it entails replacing air dams and constantly checking pans for dents and damage. If your radically lowered truck is a Chevy, like the Phantom, there is a good chance the exhaust system has paid its dues many times over and one of these days that contact with pavement could spell the end for the transmission cover or engine oil pan! What to do? After all, we can't give up driving lowered trucks.

The cure for driving a truck that is too-low-to-be-practical doesn't have to mean permanently raising its ride height! One of the best resolves comes in the form of hydraulics. I know, some people feel there is a stigma attached to mounting up juice, as it is often called, primarily because of the necessity to also have to install additional batteries. Not so for this type of application. Also, when hydraulics are installed in the manner demonstrated in this article, the existing lowered ride height goes unchanged. However, you now have the ability to raise your ride, clear steep driveways, speedbumps or road hazards, then drop it back down to cruisin' height — at the flip of a switch.

All that is required is the most basic of hydraulic systems. Sticking with a four-gear hydraulic pump, it will operate off of your existing 12-volt battery, so no additional power is required. Since only the front is being lifted by two hydraulic cylinders, the hoses, wiring and switch mechanism stay very basic, simple — and inexpensive as far as hydraulics are concerned. For example, at today's prices, this unit, installed, would cost a little more than one-thousand dollars! And there are the other typical questions concerning hydraulics, such as: How high will it lift the front of a truck? We used five-inch rams which lifts the air dam seven and three-quarter inches. How long does it take to lift the truck? About three seconds. Are they legal to install? Laws vary from state-to-state, so you should always check them to be sure your truck will remain legal. The key point is, we did not lower the vehicle any more than legal ride height, which seems to be the area of controversy with authorities.

Back to the hydraulics. The photos depict a typical installation, which should always be performed by a professional shop, as we opted for. As simple as the mounting up of a hydraulic system appears, getting it to work efficiently requires experience. And, most important, a blown hose and/or improper plumbing could be potentially dangerous. After all, there is no substitute for experience and having the right tools and knowedge to do this job correctly.

In closing, hydraulics aren't for everyone and are not a cure for a worn or damaged chassis or suspension. And no, a basic system as shown will not hop or jump. The idea behind this specific install is to be able to temporarily raise a vehicle so that it can traverse a tall curb or steep driveway entrance. That is one job this system can do quite well.

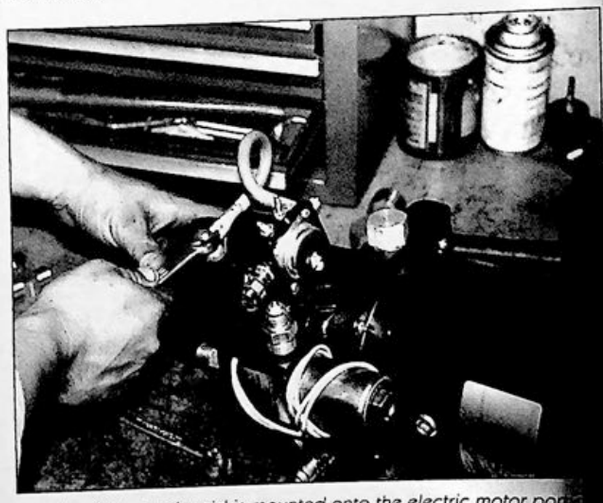


A typical base-type hydraulic kit from Richard's Custom Hydraulics of Salinas, California, consists of a four-gear pump, two rams, solenoid, dump valve, ram hardware, hoses, fittings and electric wire and cable

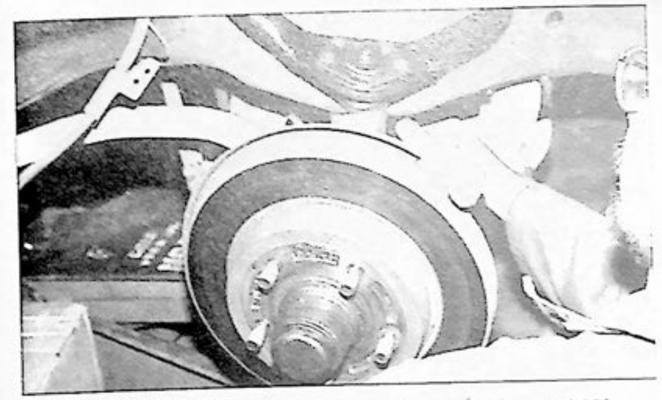
As always, to avoid injury, trucks should only be worked on with the vehicle placed on concrete or a very hard surface and supported by jackstands.

We also opted to use stock replacement tubular A-arms from Heidt's Hot Rod Shop of Rolling Meadows, Illinois. Otherwise, the stock A-arms would have to be trimmed to clear the hydraulic rams.

Key components to this kit are the hydraulic cylinder, top disc which is called a donut and a cup, which will be located into the top of the coil spring.

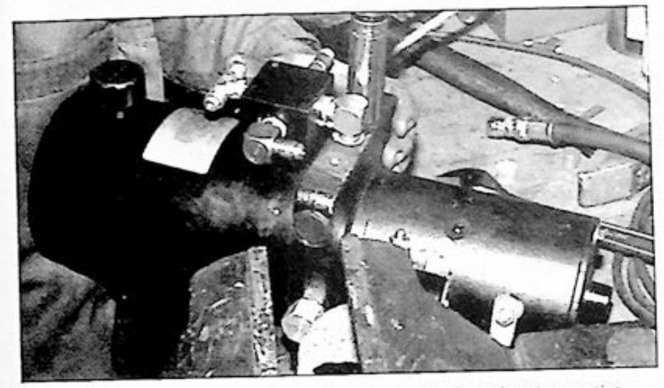


For simplicity, a solenoid is mounted onto the electric motor portion of the pump, along with the single dump valve.

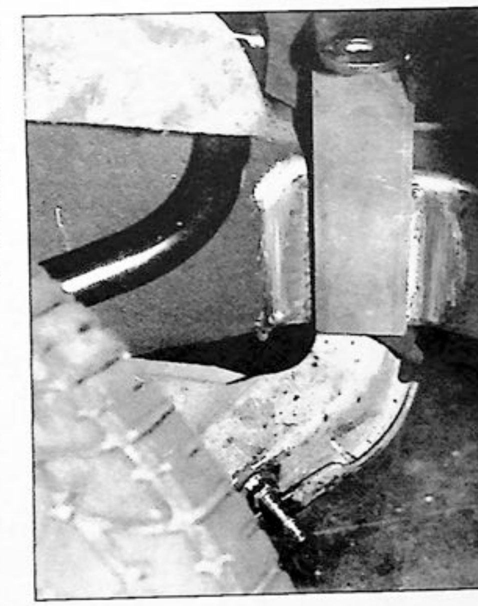


A coil was cut off the coil spring to compensate for the additional height added by the cup, then the suspension assembly is reinstalled complete with the new Heidt's A-arm.

Finally, it's time for the electrics. Twelve volts comes directly from the battery to the solenoid which is then activated by a single momentary toggle switch.

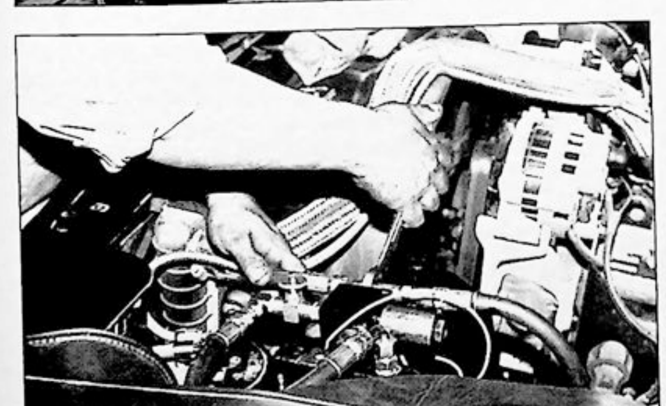


Assembly of the four-gear hydraulic pump plumbing begins on the work bench with special fittings being installed onto the dump valve.

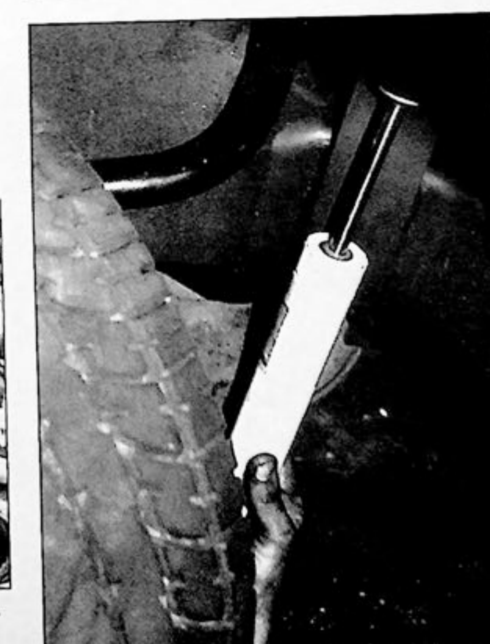


Since this is a full-function install retaining a stock ride, shocks had to be relocated onto the outside of the A-arms. Brackets were fabricated for both the A-arm and lower control arm mounts.

Sam Morales of CNC Hydraulics fabricates the lines by mounting end fittings onto the high-pressure hoses.



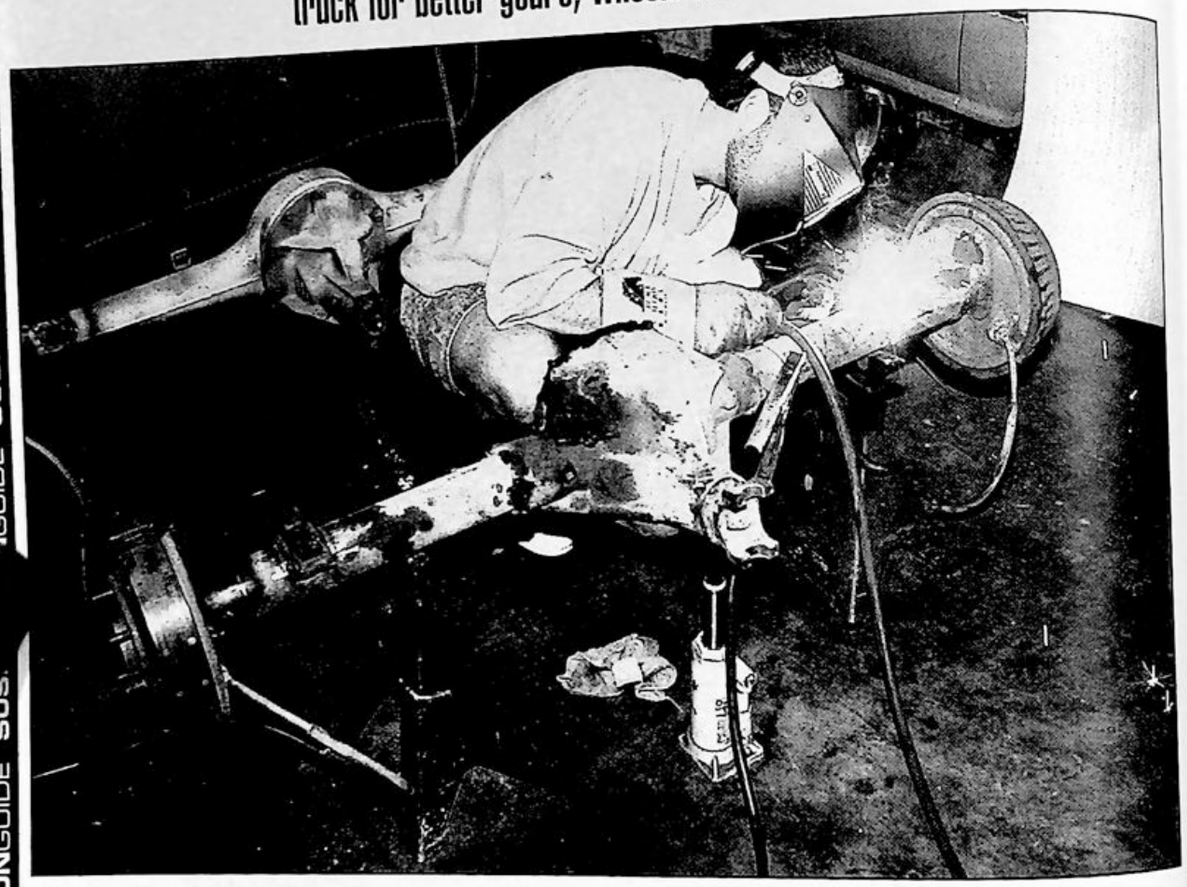
High-pressure hydraulic hoses are then routed to each hydraulic cylinder, as well as the addition of a return line with an adjustable valve, controlled by an in-line dial.



Finally, the shocks were installed to complete the installation. Now the Phantom can go anywhere a stock truck can, and without scraping the air dam and frame, all at the flick of a switch

SWAPPIN' REAR ENDS

Install a 12-bolt Camaro rear end in your 1955-'59 Chevy truck for better gears, wheels and brakes



BY BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK

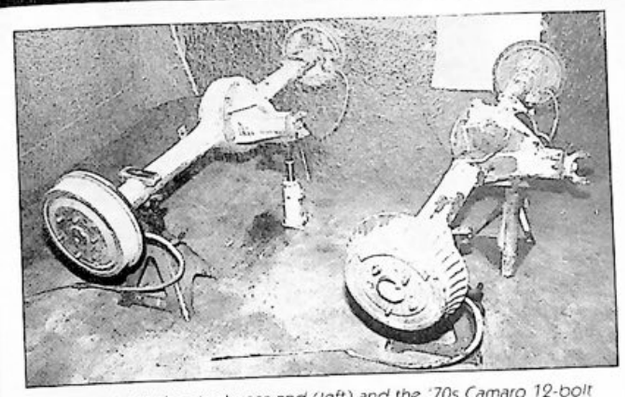
For those of you who own 1955-'59 Chevy trucks, I'm sure that the thought of ditching the stock rear end has come to mind more than once. While some of you may have already made some sort of swap of your own to solve the dilemma, many are still buzzing along down the freeway with the engine singing at high rpm, riding on out-of-date wheels and having to triple-pump the brakes to get the old Bowtie to come to a stop.

Probably the most popular of all rear end swaps for classic Chevys of this era is the Camaro 12-bolt version. More and more 1955-'59 enthusiasts are installing the Camaro rear end because it is nearly identical in overall diameter, provides countless options of gear ratios, the choice of posi-traction or open carrier, the ability to upgrade to several brake options, and best of all, the Camaro rear end is five-lug so your choice of wheels is now as broad as they come. The five-lug pattern is especially important if you have installed an aftermarket front disc brake kit or a Camaro front clip.

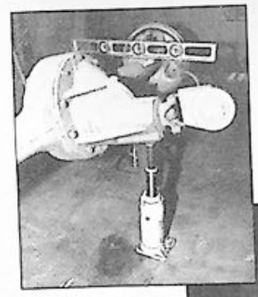
Installing the '70s Camaro 12-bolt rear end is easier than it may seem which is why so many folks have already installed one under their classic Chevy. All that is needed to get the job done are a welder, cutting torch, sander, straight edge level and a magnetic level for checking degree angles, and, oh yes, a working Camaro rear end.

The stock leaf spring mounting pads from your stock rear end must be cut from the axle tubes using a cutting torch if you don't care to keep your old rear end, or a disc grinder if you chose to salvage the vintage rear end. Either way, the pads must be removed from the stock axle tubes. The stock installed angle of the pads is 12-degrees which provides the proper pinion angle. The pads must be installed at this same angle if your truck is stock, or at an equivalent angle if your truck has been lowered.

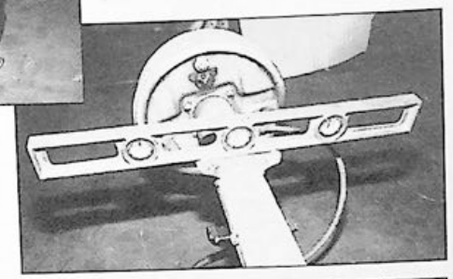
Like I said, the process is very simple and definitely worth the time it takes to make the changes. Both you and your truck will be happy you did. This particular installation was performed at Golden State Pickup Parts in Buena Park, California on a *Truckin'* magazine project giveaway truck. So keep your eyes peeled for the buildup and info on this hot 1955 Chevy truck that just so happens to have a Camaro rear end.

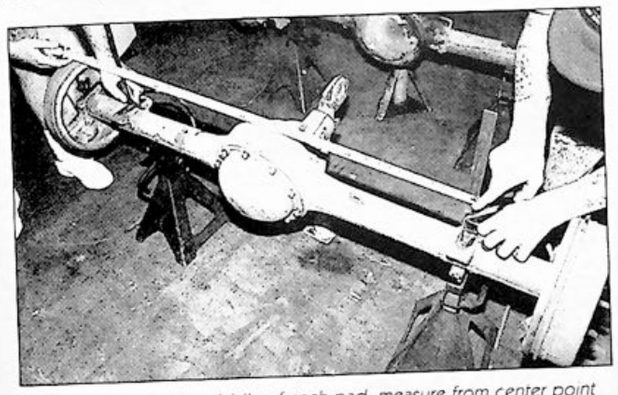


To begin, both the stock rear end (left) and the '70s Camaro 12-bolt rear end (right) must be supported on jackstands or something safe.

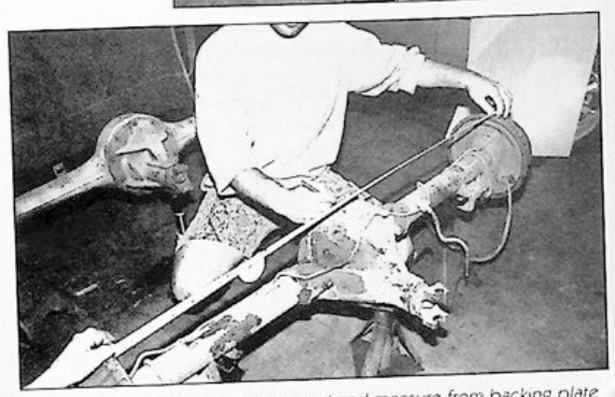


The stock rear end has a 12-degree pinion angle when the leaf spring pads are leveled. Remember, this is for the stock application. If your truck has been lowered, the appropriate pinion angle in relation to the tranny yoke will have to be addressed.

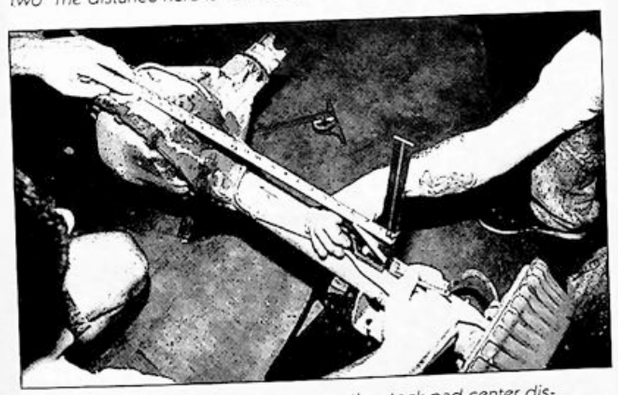




There is a hole in the middle of each pad, measure from center point to center point of the pads to acquire a measurement between the two. The distance here is 42 inches.

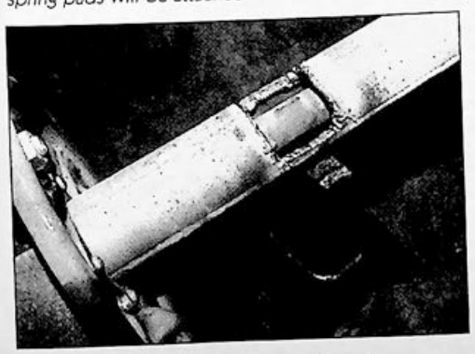


Next, go over to the Camaro rear end and measure from backing plate to backing plate, or the overall diameters, whichever you prefer, to find the center point of the entire rear end. Divide the overall distance by two and mark the center point on the housing.



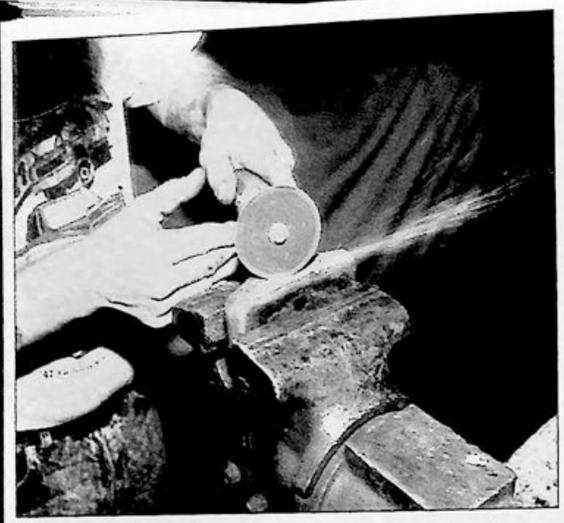
Since the measurement taken between the stock pad center distance was 42 inches, simple division made half the distance 21 inches. From the center point just marked on the Camaro housing, the distance of 21 inches is measured out and marked on both sides of the rear end. This will be the center points where the leaf spring pads will be attached.

If you don't plan on keeping the old rear end, use a cutting torch to remove the pads. Remember not to cut the pad itself.

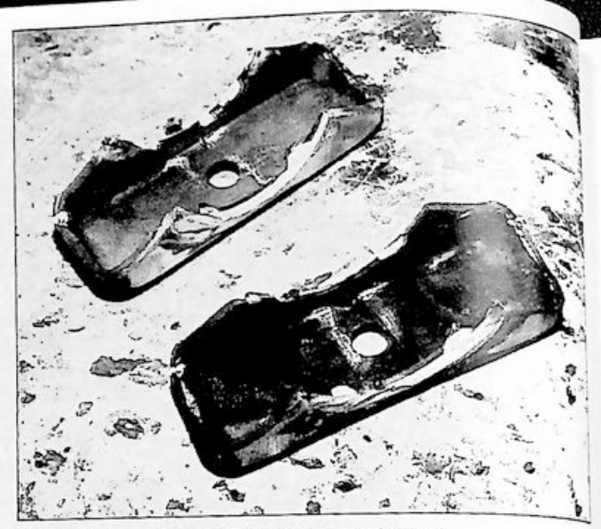


Quite obviously there's no chance of keeping this rear end after the leaf spring pads have been removed.

A belt sander is needed to cut down the old weld and excess material from the pad.

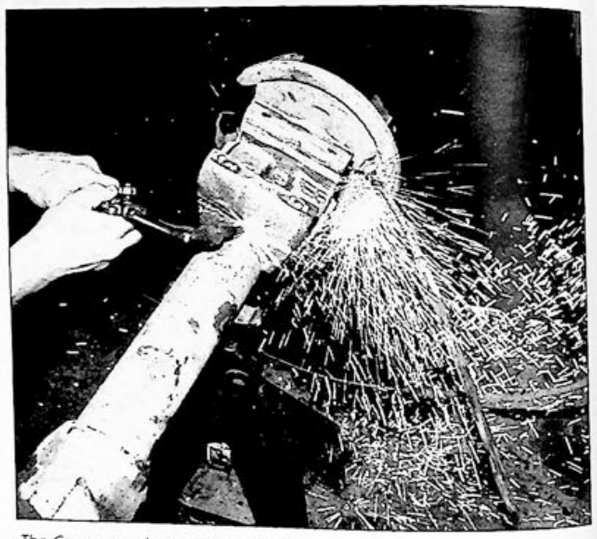


A portion of the housing that was originally welded to the pad has to be removed as well. A cutting wheel is a good tool for getting the job done.

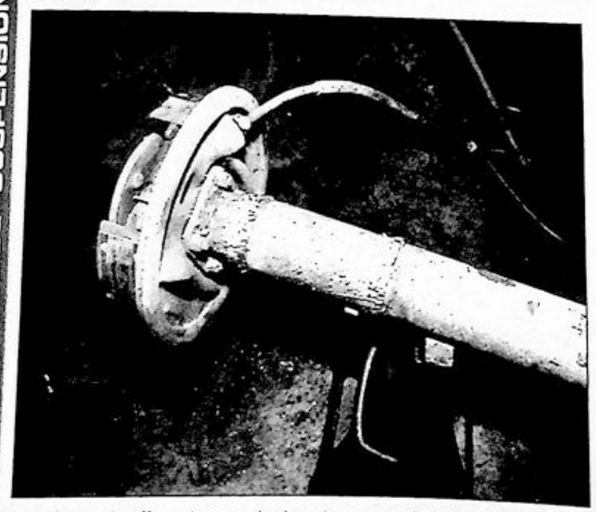


This is what you should have when you are finished cleaning up the pads.

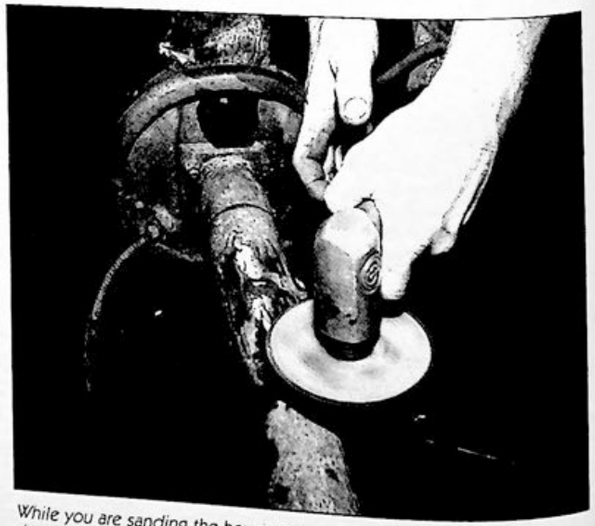
Back over to the Camaro rear end, if you haven't already, go ahead and remove the stock brake lines.



The Camaro pads are big and bulky and are easily removed with cutting torch.

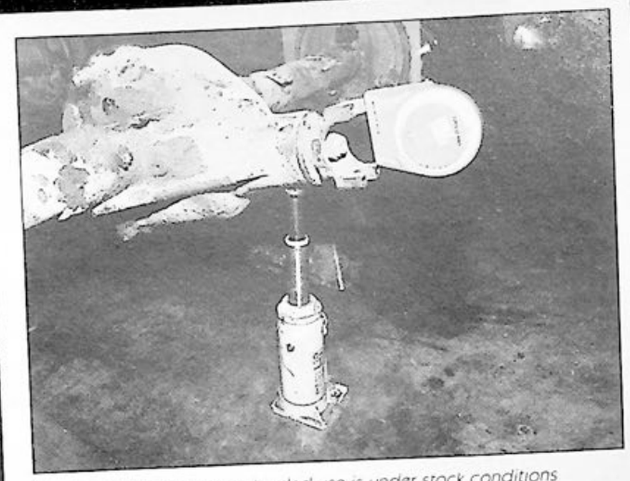


Cut the pads off as close to the housing as possible, then follow up with a few passes with disc sander to smooth out the finish.

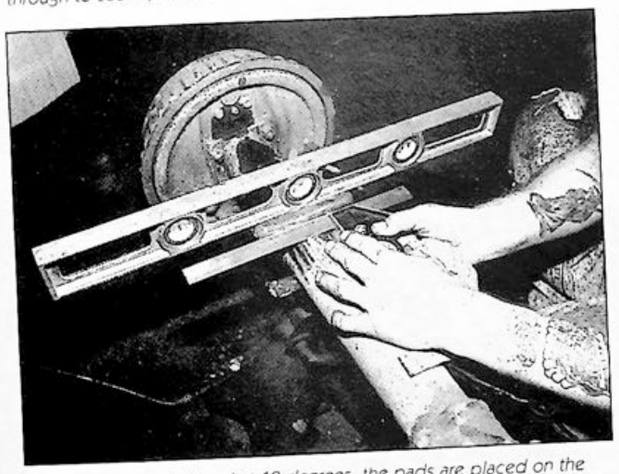


While you are sanding the housing down, clean up the area around the pad center mark so that you can get a good weld.

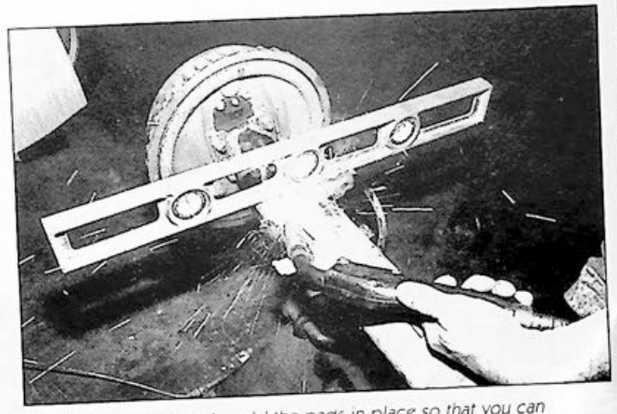
Before you go any farther, make sure that the pad center mark is very visible for you will only have a hole in the pad to look through to see if you are on center



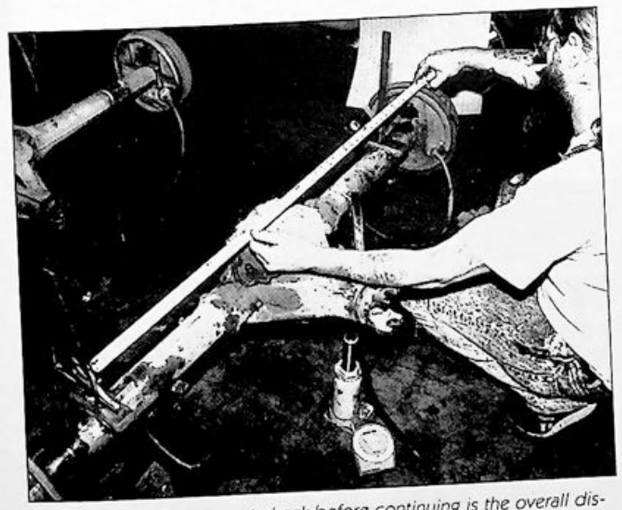
For this application, our intended use is under stock conditions so a screw jack is placed under the pinion yoke and raised upward until we reached 19 degrees.



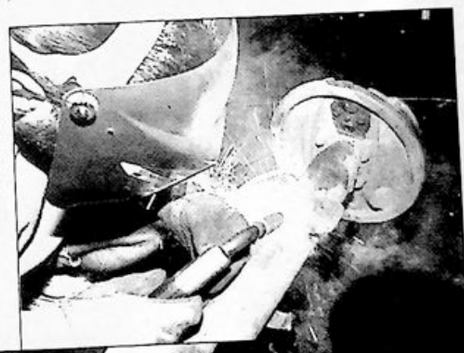
With the rear end placed at 19 degrees, the pads are placed on the axle housing over the center points and leveled and squared to be sure that the pads will be installed accurately



It is best to simply tack-weld the pads in place so that you can check to make sure that everything is still right after the pad has been permanently attached



One of the things you must check before continuing is the overall distance to make sure it didn't change while you were tacking the pads.



If everything checks out okay, the entire pad is then welded to the Camaro rear end

This is
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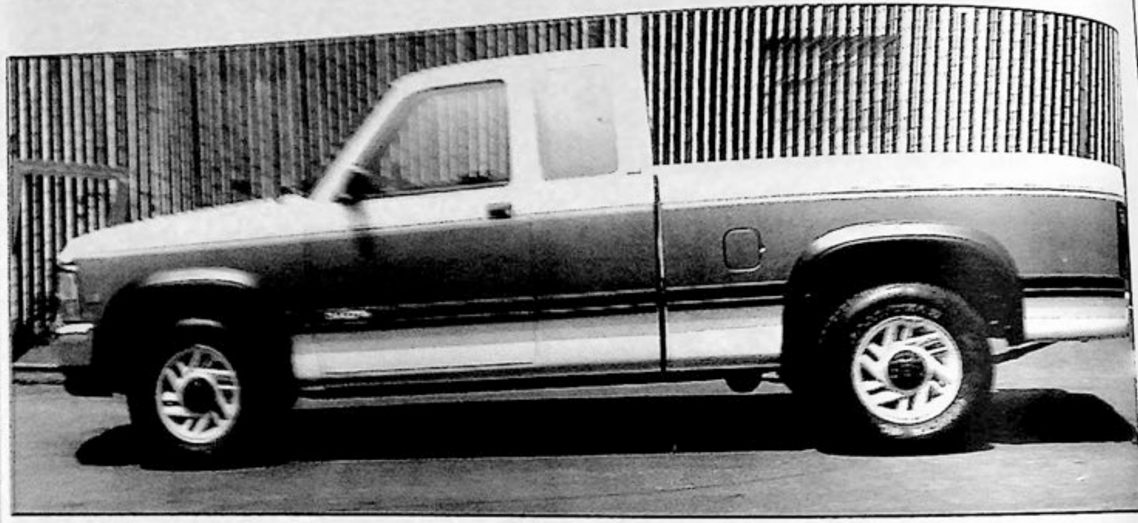
DAKOTA SLAM

Chisholm Enterprises introduces their new simple slam for the Dakota



Doesn't the nose height of this Dakota give you a nose bleed from the altitude it's riding at? The Dakotas sure have a lot of space from the top of the tire to the lip of the fender well. This Dakota will receive a three/five drop that will be just enough to help fill that gap. This drop is also perfect for the drive-it-anywhere

BY BILL TURNER
PHOTOGRAPHY: BILL TURNER

To keep up with the latest trends in the sport truck marketplace. Chisholm Enterprises is always at work in their research and development department designing new lowering kits for just about anything that has four wheels and rolls. Their newest development is a lowering kit for the Dodge Dakota, available in three different stages.

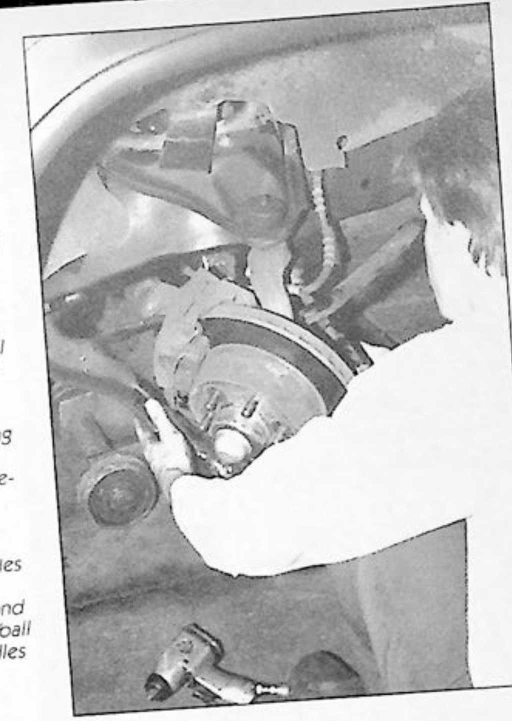
The three kits they offer start with a two/four, on to a three/five, and end with the max slam of four/six. The two/four slam kit features a four-inch de-arched set of rear springs and a set of two-inch-shorter front coils. The kit also comes with four new shorter shocks designed to work with the new springs from Chisholm. They also supply new sway bar end link kits and shorter bump stops for the front and rear.

The three/five slam consists of a five-inch de-arched set of rear springs and a set of three-inch drop arms for the front. The kit also comes with shocks, bump stops, and a new end link kit.

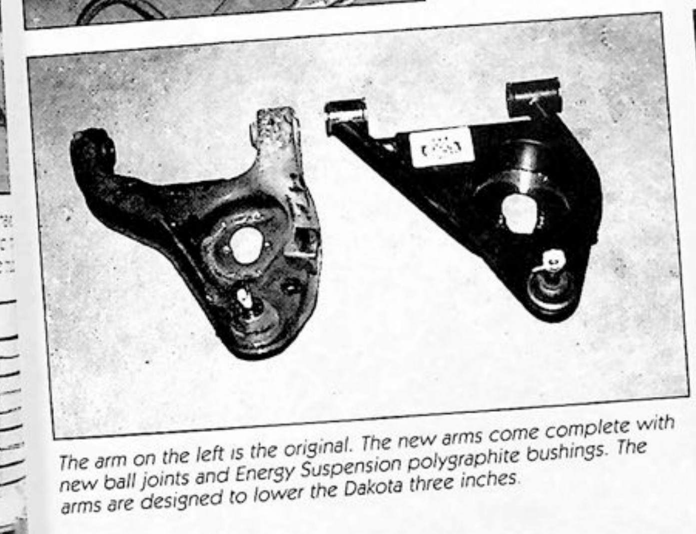
The max slam of four/six features a set of six-inch de-arched rear springs and a pair of three-inch dropped front arms combined with a set of one-inch-shorter front springs to complete the four-inch drop. This kit also comes with shocks, end link kits and new bump stops.

Follow along as Chisholm's head installer Jimmy Chadick installs their new three/five slam kit on a customer's Dakota.

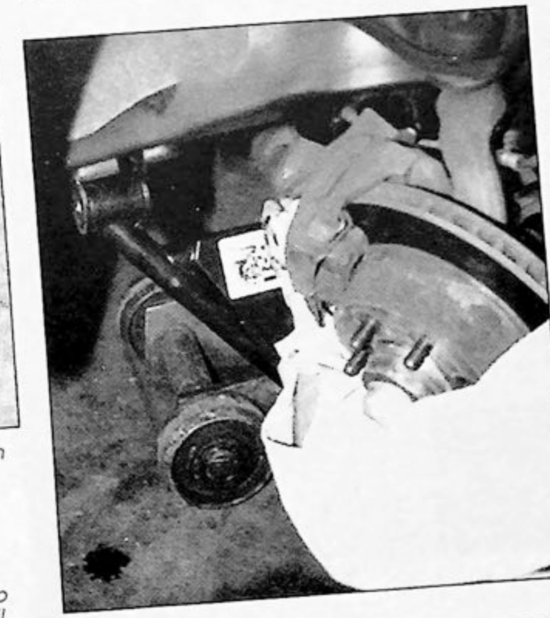
Jimmy Chadick, the head installer over at Chisholm, started with the front suspension. The first step after securing the truck on jackstands was to loosen both spindles from the lower bottom ball joints. To do this Jimmy loosened the nuts on the lower ball joints leaving a few threads still on the ball joint stud to keep the lower A-arms from popping off the ball joint stud and allowing the springs to fly out and possibly hit someone. Then to break them loose he smacked the lower portion of the spindles with a large sledge hammer until the bond between the lower ball joints and the spindles was broken



Jimmy then removed the shocks from both sides and one at a time he placed a floor jack under the lower control arm and removed the nut from the ball joints and let the arms down and removed the springs



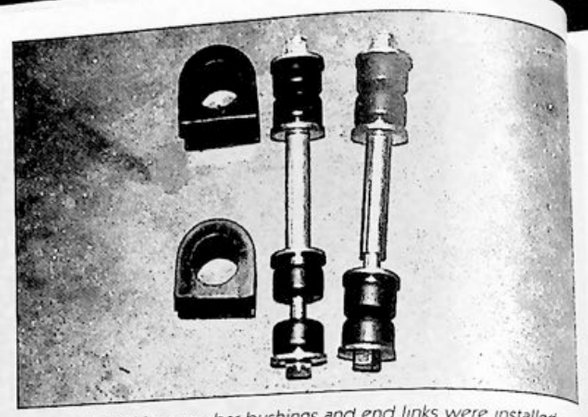
The arm on the left is the original. The new arms come complete with new ball joints and Energy Suspension polygraphite bushings. The arms are designed to lower the Dakota three inches.



Jimmy then installed the new A-arms on both sides.

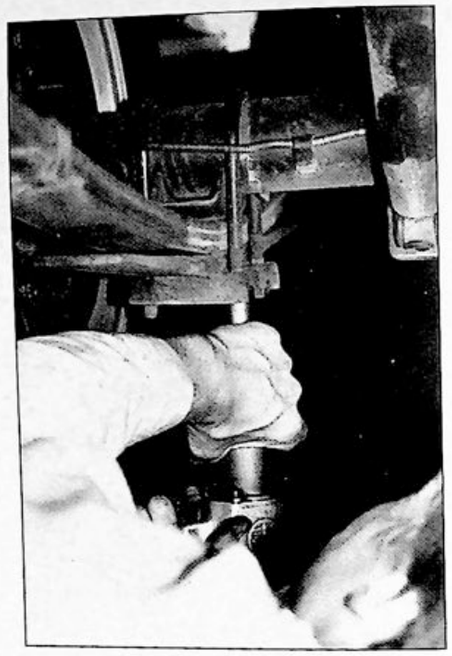
The next step was to install the springs. Jimmy uses a coil spring compressor to collapse the springs so he can easily install them back into the spring pockets.

New Chisholm shocks are then installed. The shocks are shorter and designed to work with the springs.

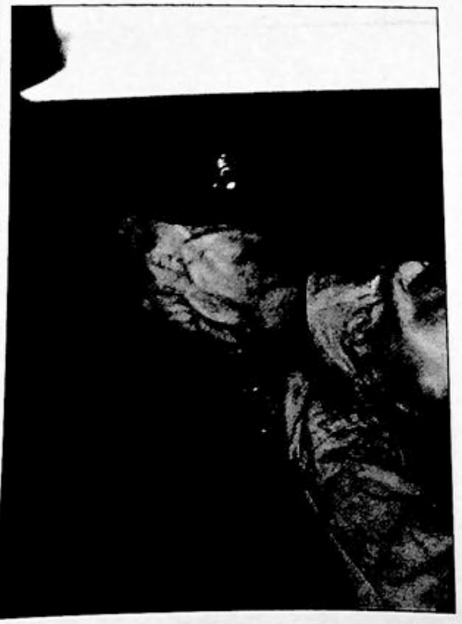


New polygraphite sway bar bushings and end links were installed.

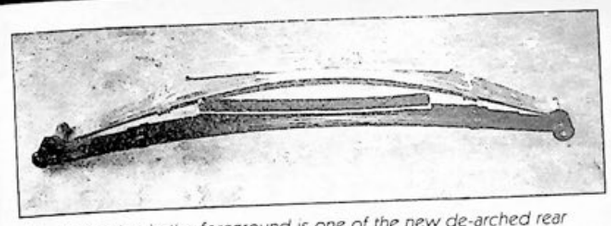
After the front suspension was finished up Jimmy started on the rear. The rear shocks were removed first.



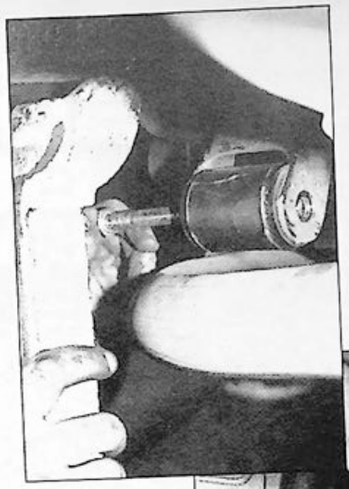
The U-bolts and related hardware were then removed from both of the rear springs and the rear end was then jacked up off the springs with a floor jack.



The front spring mount bolts were removed from both springs and the bolts were removed from the rear shackles. The springs were then removed from the truck to make way for the new ones.

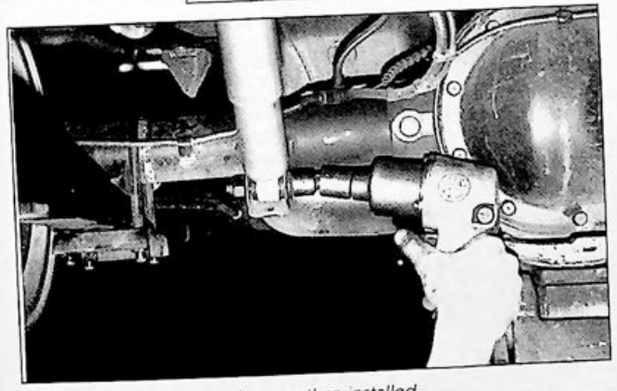


The leaf spring in the foreground is one of the new de-arched rear springs. You can see how much flatter the arch is between the new one and the stock one in this photo.



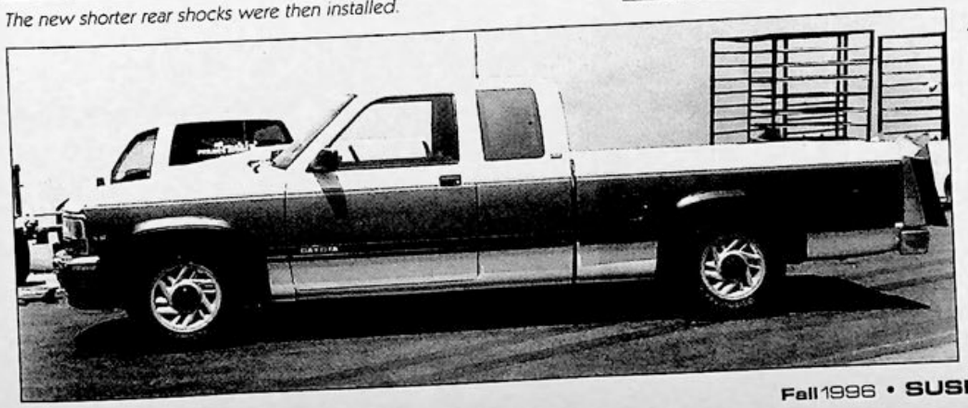
Jimmy installed the new springs into the front mounts and then up into the rear shackles.

Then the U-bolts and related hardware was re-installed and tightened up.



The new shorter rear shocks were then installed.

The original bump stops are too big so Jimmy replaced them with new shorter ones from Energy Suspension. These bump stops are also supplied in each kit.



Ah, the finished product! Looks good, huh? This is the three/five slam using the stock front coil spring combined with a three-inch drop arm. The rear utilized a pair of five-inch dropped de-arched springs. If you have any questions give the guys over at Chisholm a call. If you are a full size Dodge fan they also make products to lower full-size trucks as well.

IN SEARCH OF A FRONT SUSPENSION FOR BUFORD

Not just another pretty IFS, but one that is off-road worthy...

After tramping through the back acres of the local wrecking yard, we located a 1973 Plymouth Duster which had not suffered any front end damage. A quick measurement of the front track indicated that it was close enough to the original front track of the '46 for serious consideration.

BY FRANK ODDO

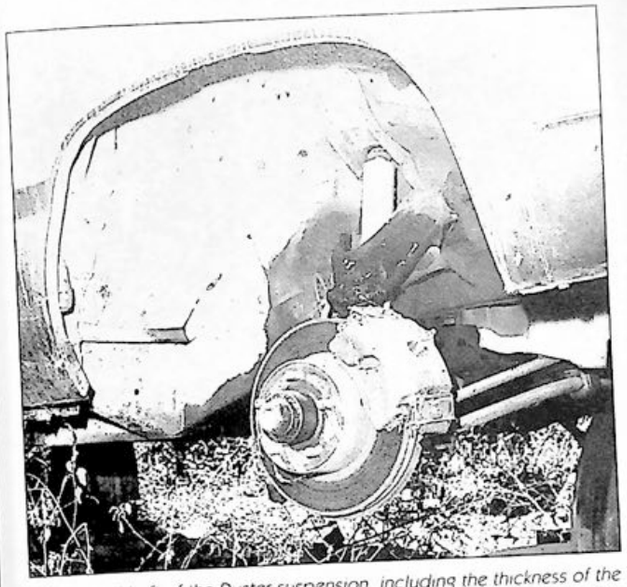
When formulating my plans for Big Buford, the fledgling race car tow truck, I was a little hazy about the drivetrain details. True, I had made up my mind to convert the 1946 Ford one-tonner into a "phantom" 1940 pickup (sporting utility sides) that could do triple-duty as a parts chaser as well as a hunting vehicle. I just hadn't really firmed up my choice for a front or rear suspension. Well, as you can see from the accompanying photos, at least half of that analysis paralysis has been put to rest.

It all came to a head over a burger and fries session at Huntington Beach's hot rod hangout, the BeBop Shop. While munching the goodies and eyeballin' the neat old movie posters (*Hot Rods To Hell*, etc.) with Terry Berzeyne, I was thinking out loud about my front suspension options: modified stock I-beam with parallel leaf springs, the Ford Ranger Twin I-beam suspension, the Mustang II independent or the Volare torsion bar.

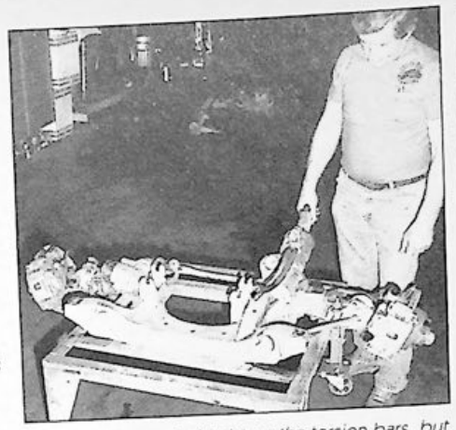
Terry is a pal of nearly 20 years' standing, known to readers of *Truckin'* magazine as the "King of the Torsion Bars" for more than a decade. He sold his shop a while back and is now semi-retired. He hasn't been able to entirely keep his fingers out of the hot rod pie, however, and spends a good part of his day working on his own cars at Chris McDivit's Performance Corner (7611 Slater, Unit E, Huntington Beach, CA 92647). Obviously, I had already decided that I would enlist Terry's aid in the installation of a front suspension for Buford; I just hadn't told him yet... and I didn't know which suspension.

At this point, let me pause and go over the stock dimensions of the 1946-47 Ford pickup. Those of you who own, or who are considering buying one of these reasonably available and downright inexpensive post-war haulers, should have this information available. It is critical to making choices such as the one at hand.

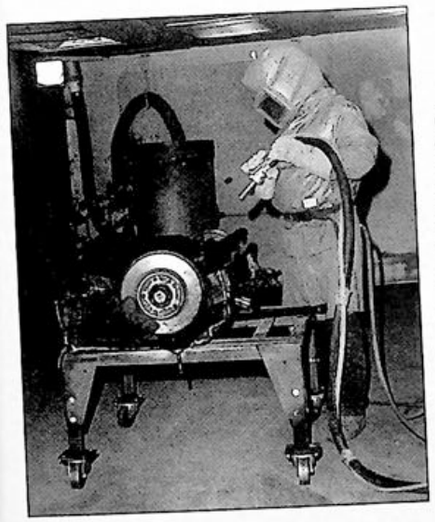
The 1946-47 models continued the use of the basic 1940 cab, but with a set of front fenders and grille unique in Ford styling history for their ugliness. The half-ton model has a wheelbase of 114 inches while the Tonner supposedly has a wheelbase of 122 inches. At least that's what it says in the book. My Tonner, however, has a wheelbase of 114 inches. (So much for 47-year-old sales brochures.)



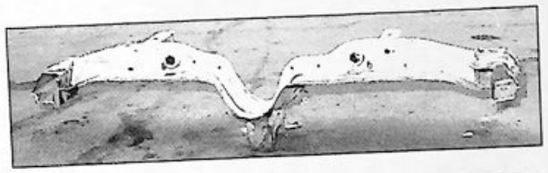
The overall heft of the Duster suspension, including the thickness of the torsion bars, the size of the ball joints and control arms and the obvious massiveness of the disc brakes convinced me. The steering gear is also big and beefy. Even though the suspension is literally 20 years old, urethane bushings are available for it. (Urethane has an advantage over the stock rubber parts because it doesn't deteriorate like the rubber components do.)

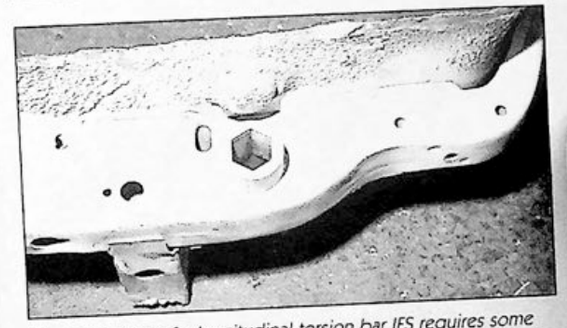


The longitudinal torsion bar suspension uses two straight rods of about 25 percent of the wheelbase in length. The front ends of the rods or bars are attached to the lower control arms and twist in response to the up and down movement of the front wheels. This twisting action provides the springing action. The weight of the vehicle places an initial twist on the torsion bars, but by rotating the rear end of the bar, the front end of the vehicle can be lowered or raised and the ride characteristics modified.



Once we got the assembly back to the shop, we had Jerry Meartz of Advanced Metal Stripping (17451 Nichols, Unit M, Huntington Beach, CA 92647) blow it clean with his glass bead blaster. He later cleaned Buford's frame with walnut shells.





The installation of a longitudinal torsion bar IFS requires some type of rear anchor crossmember. To ensure that we had what we needed, the whole floorboard was cut out of the Duster although we actually ended up using only the anchors. The rear anchors must be installed in the recipient frame just as they were in the donor frame. Before they were welded into the '46 the "timing" was noted and reference points were put in. We will do a separate story on how to time the bars and rebuild the front end with modern hardware, but for now, let's just get the suspension properly in place.

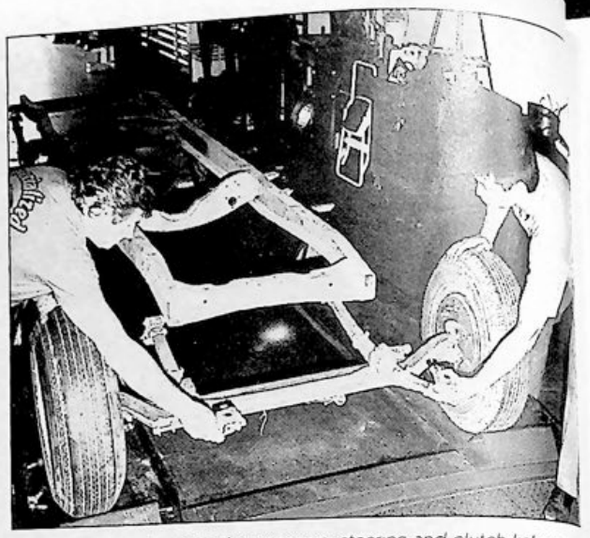
The front track is 57.5 inches and the distance from backing plate to backing plate measures 51 inches. The chassis is 32 inches wide at the front frame horns. Some of these dimensions are not commonly given, but they are important when you are considering installing a late-model independent front suspension... and earlier model front fenders and hood.

With the above in mind, Terry and I reviewed some of the front end options for the '46, the first being my initial interest in a late-model Ford Ranger Twin I-beam suspension. Terry felt the Ranger was not a good choice because of the tire wear problems associated with the kingpin angles. These shortcomings might even be aggravated by the fact that it was likely Buford would turn out to be a little heavier than a stock Ranger. By the time I had special springs made and compensated for the kingpin angles, it was more of a problem than I wanted to deal with inasmuch as my tentative completion date — the Bonneville Speed Trials — was a mere 11 months away.

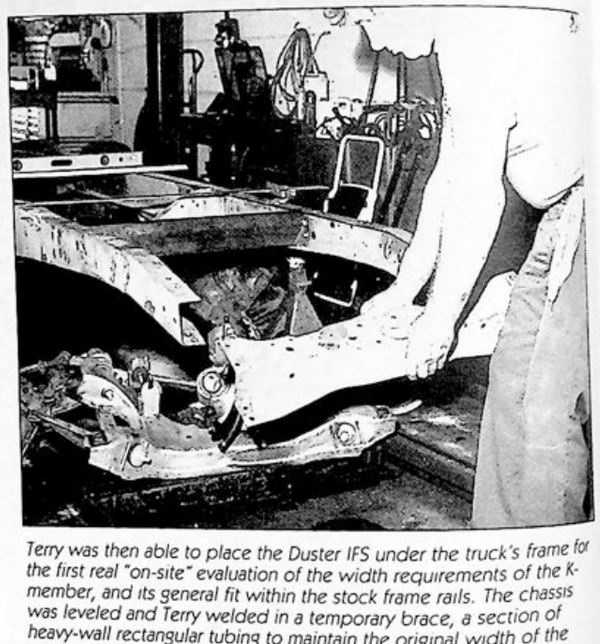
I also like the Mustang II suspension; I run one in my 1940 coupe, but the coupe is strictly a street cruiser. Buford is scheduled to be a working hauler, one whose primary assignment will be towing our race car, sometimes over the rough desert trails leading to El Mirage Dry Lake, sometimes through the inevitable foot-deep salt puddles leading to the Bonne[illegible] course. Well, the small disc brake rotors and the s[illegible] bearing size effectively put the 'Tang Two out of co[illegible]

Then there's Terry's favorite: the Aspen/Volare tr[illegible] sion bar suspension. It was Terry's first suggestio[illegible] because he pioneered its custom truck installation, bu[illegible] works so damn well. In fact, it is probably second o[illegible] dropped axle in terms of custom truck popularity. But [illegible] sive, and the track is rather wide for a 1946 truck, especi[illegible] with '40 Ford front sheetmetal grafted to the cab.

That left one viable option: the other Mopar torsion ba[illegible] pension, the slightly smaller longitudinal bar variation fro[illegible] Duster. Wait, "slightly smaller" than what? Well, yes, the Vola[illegible] But not slightly smaller than the original I-beam, parallel l[illegible] spring front suspension. It is significantly more massive than t[illegible] stocker.



After removing the original suspension, steering and clutch linkage, Terry and Bill rolled out the original I-beam front axle



The first step in the installation was to put in some reference points. Terry and apprentice Bill DeBreau scribed the original axle center line points on the top and sides of the frame so that the Duster IFS could be installed exactly where the original I-beam axle was first installed.

Terry was then able to place the Duster IFS under the truck's frame for the first real "on-site" evaluation of the width requirements of the K-member, and its general fit within the stock frame rails. The chassis was leveled and Terry welded in a temporary brace, a section of heavy-wall rectangular tubing to maintain the original width of the chassis. Only then was the stock front crossmember removed

At any rate, this particular suspension consists of two longitudinal torsion bars (they are non-interchangeable, and are marked either right or left by an "R" or an "L" stamped on the end of the bar), two sets of upper and lower control arms, four ball joints and two struts. The front ends of the torsion bars engage the lower control arms at the inner pivot points. The rear ends engage adjustable anchor and cam assemblies that are supported by brackets welded to a rear crossmember. (Some crossmembers may be removable, but the hardhat at the wrecking yard took ours out with a hot wrench.)

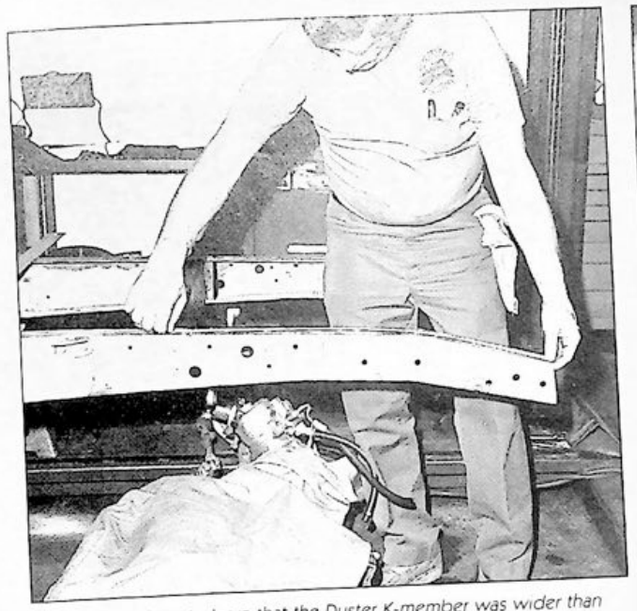
The upper control arms are mounted on brackets that are bolted to the frame siderails. The lower control arms are attached to the frame front crossmember by pivot shafts mounted in rubber bushing assemblies. The steering knuckles are connected to the upper and lower control arms by means of ball joints. To prevent the possibility of fore and aft movement of the lower control arms, a strut runs from the arm to the front crossmember.

The above information was straight out of the Motor Manual, but the most critical dimension — the wheelbase — was not given. It looked as if the only way we could be sure was to head on over to the wrecking yard.

Luck was with us, as Admore Auto Dismantlers in Stanton had a couple of Dusters on the back acreage. A direct measurement from center of tire to center of tire indicated that the track was about 58.5 inches. (It is difficult to get more specific inasmuch as track can vary with the use of offset wheels.) At any rate, the Duster IFS track is only about a half-inch wider than the stocker.

It was time for a decision. A complete IFS was available at a fair price and the front track was in the ballpark. Furthermore, I had written a short piece about a longitudinal torsion bar installation in a 1956 frame ("Torsion Bar Suspension In F-100s," *Truckin'*, October, 1976), and remembered that this was a good suspension even though a '56 is much bigger than a '46. The downside was that although Terry has installed Duster suspensions in 1948 and later trucks (and about a million Volare suspensions in F-100s), he had never installed a Duster IFS in a 1946 truck. But he was sure it could be done.

Well, every once in a while one has to make a decision armed only with minimal available information, so I decided to buy the Duster suspension and give it a shot. This is the way the installation went.

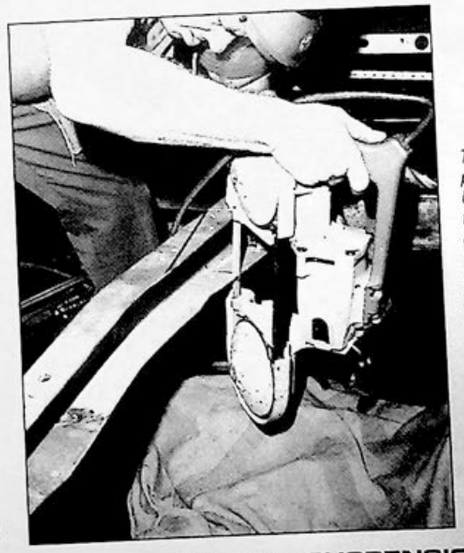


It didn't take long to learn that the Duster K-member was wider than Buford's chassis, that is, it would require mounting points beyond the width provided by the stock '46 frame. We also had another problem! As it sat, the driver's side frame rail ran right through the steering box! When we took a closer look at the frame, we saw that it was the right width behind the cab, but it narrowed down from the firewall forward. Inasmuch as I wanted to replace the stock front sheetmetal with 1940/41 components, this further complicated the situation

After Terry pulled the frame rail out, he held a straightedge against the side of the undisturbed rear section and decided where he would make his next cut

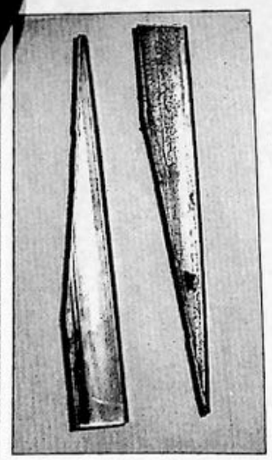
Before he did so, however, he made a similar "pie-cut" on the driver's side rail exactly across from the passenger side rail.

No matter, Terry would have to widen the original frame anyway. Out came the Milwaukee heavy-duty band saw that cuts through frame rails like butter. Terry next determined where he would have to "dog-leg" the frame, that is, kick it out, then back in. He first cut a wedge in the frame of about 3/8-inch, so that the frame rail could be pulled out.

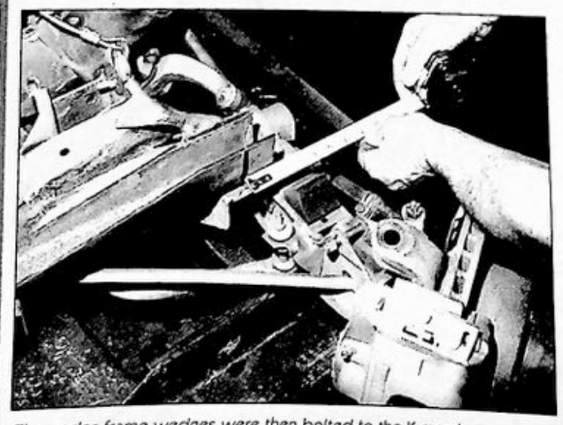


The inside cut to pull each rail back in line to match the cut on the other side so the sections of rail before and after the cut are parallel.

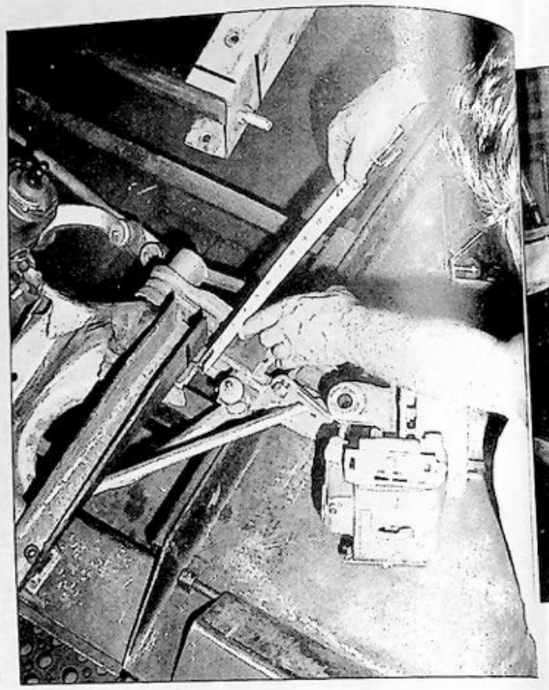
Terry knew how far apart the two front rails should be when he was finished (from the bolt pattern on the Duster's K-member), but he wanted to hold the rails constant during welding, so he cut a piece of heavy wall tubing the exact inside width of the chassis and ran a piece of threaded rod through the tubing. With nuts on the ends of the rod, he could pull the two rails together. This kept them at the exact width and allowed him to dial in the location of the front suspension perfectly by shifting it back and forth before he welded anything permanently.

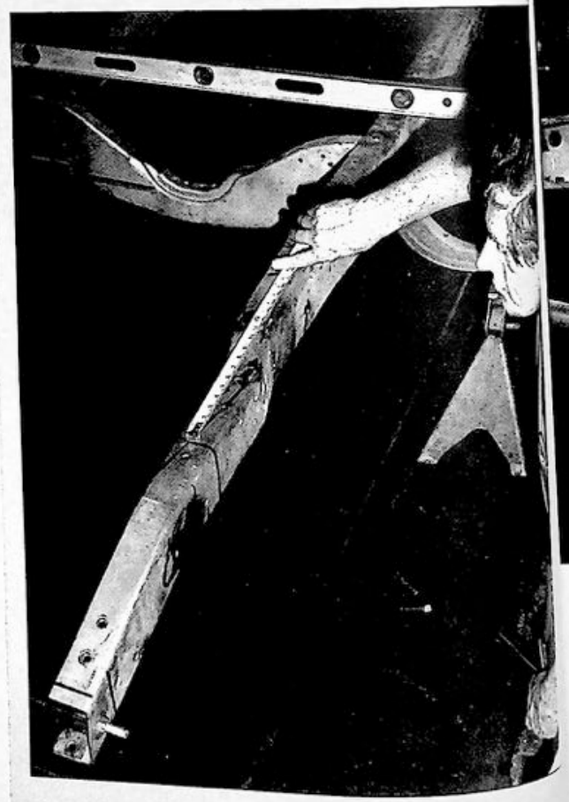


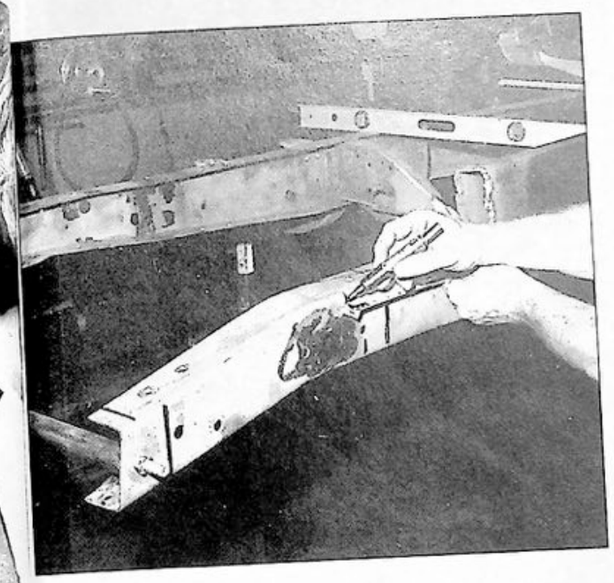
Because of the configuration of the chassis front-to-rear, Terry saw that he would have to fill in the underside of the rails in order to provide a level surface to which he could bolt the K-member. He measured and cut these sections out of heavy wall 2x4 rectangular tubing to fit under the chassis.

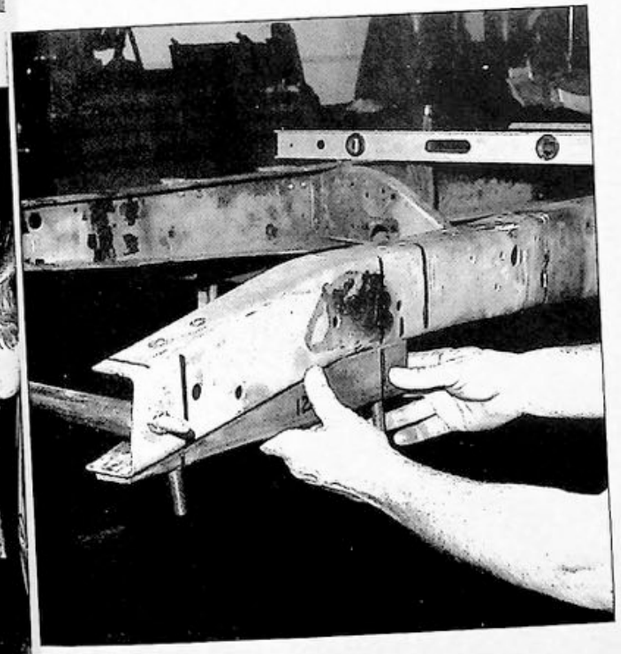


The under-frame wedges were then bolted to the K-member to make sure the attaching points were right on.

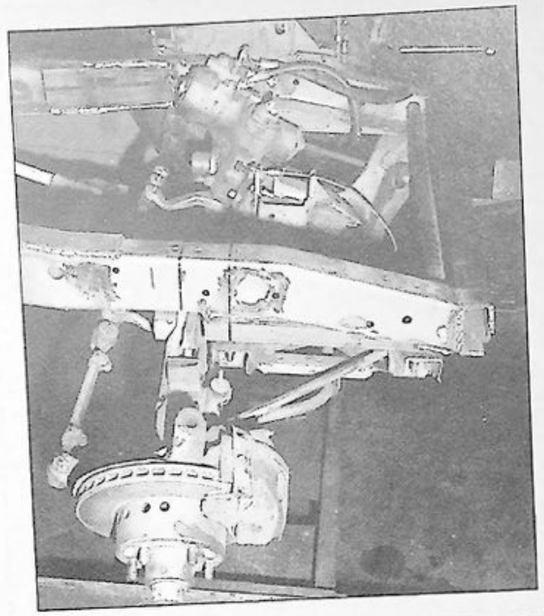


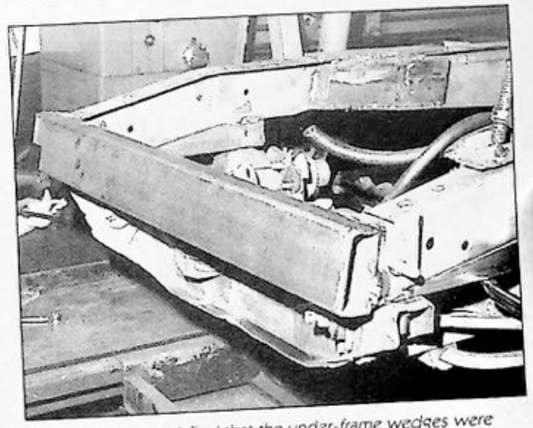




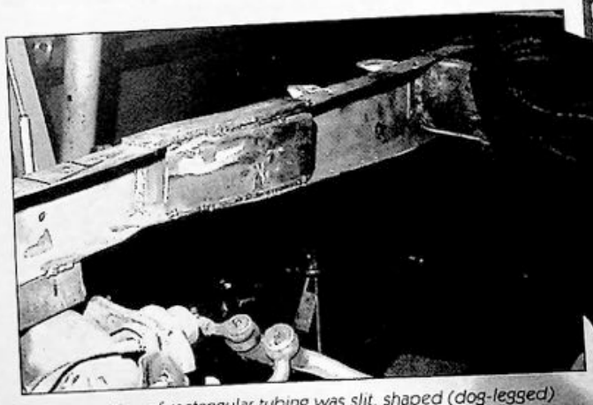


A number of reference points on the top and sides of the truck frame rail including the previously located centerline of the beam axle were cross-referenced to the Duster suspension. Terry could then be sure that the centerline of the Duster spindles matched the original axle centerline. This would tell him where to attach the IFS K-member to the truck chassis.

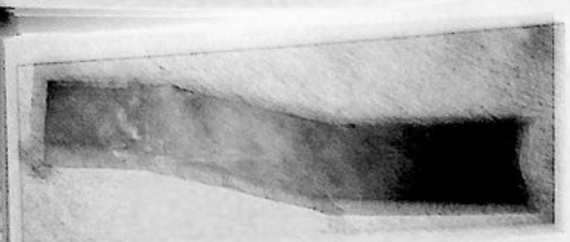




Once Terry was satisfied that the under-frame wedges were accurately located and the Duster suspension could be temporarily installed, he welded a piece of heavy wall rectangular tubing to the front of the frame rails to secure everything prior to boxing and fish-plating the modified chassis for strength. This brace would also be a temporary fixture.



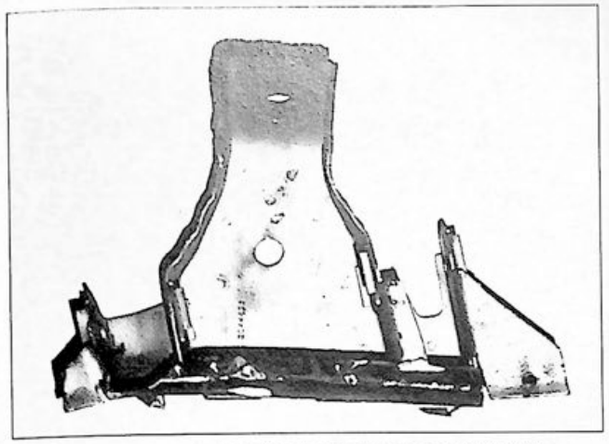
Next, a section of rectangular tubing was slit, shaped (dog-legged) and permanently welded into the chassis rail. →



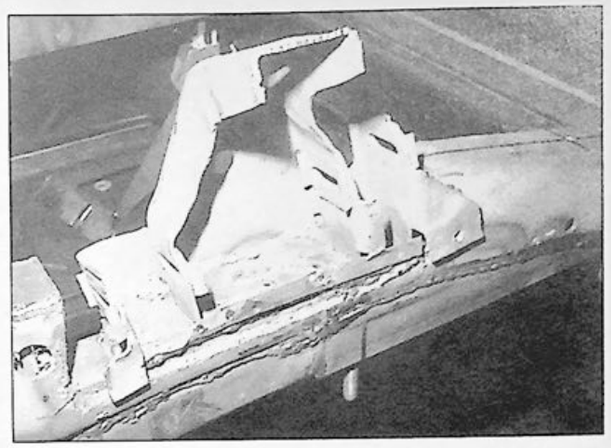
Now it got tricky. Terry had to transfer the measurements necessary to relocate the upper control arm/shock mounts (which were originally located on the Duster unibody sheetmetal) to Buford's rails. Several trial fits were in order to get everything just right. This is the essence of the entire IFS installation; a painstaking re-creation of the 16-18 gauge unibody sheetmetal support structure to a new structure fabricated from quarter-inch steel plate and tubing welded to the original chassis.

Following that, lengths of heavy wall 9x9 square tubing were cut, dog-legged and permanently welded to the underside of the chassis rail to add yet more strength to the frame and to continue the support offered by the K-member wedges up front.

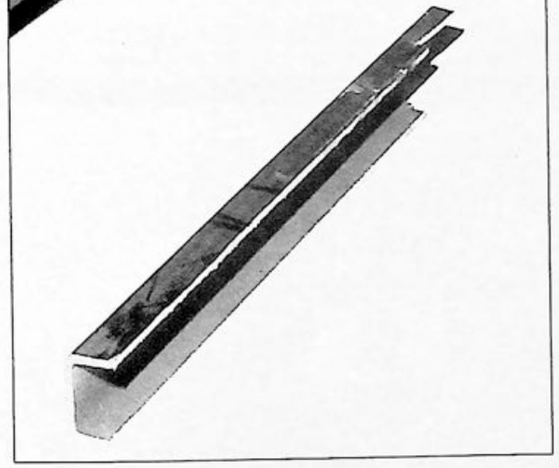
Measure twice, cut once. When satisfied that the measurements were accurate, Terry notched the frame down about three inches to accept the control arm mounts. The big band saw gets most of the job done quickly, but final accuracy is best accomplished by a flex-head die grinder with a thin cutting blade, or a hand hacksaw.

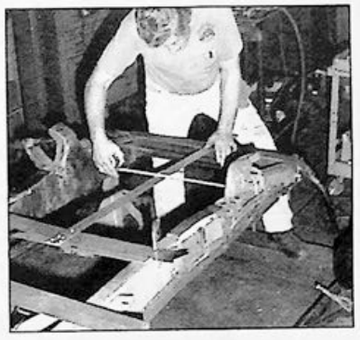


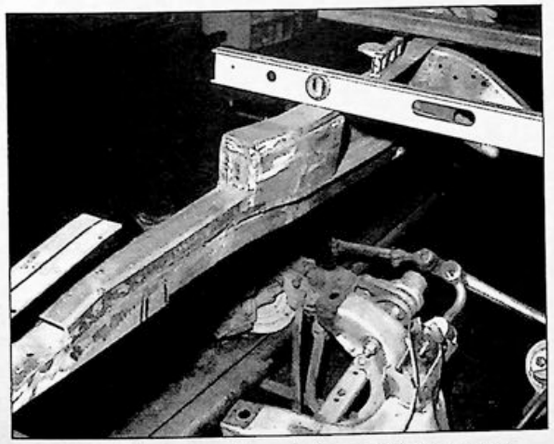
The Duster upper control arm/shock mounts were skinned of the superfluous surrounding sheetmetal and trimmed to length for installation in the notched chassis rail.



Finally, the upper control arm/shock bracket was welded into the notched frame rail. Secure mounting was assured by boring holes along the base, and then welding the piece through and around them. The bracket was then welded all along the base. Although the affixed bracket was not "pretty as a picture" at this juncture, it was becoming beefy enough for the roughest road. Cosmetics would come later.

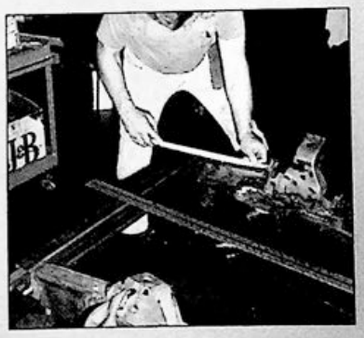


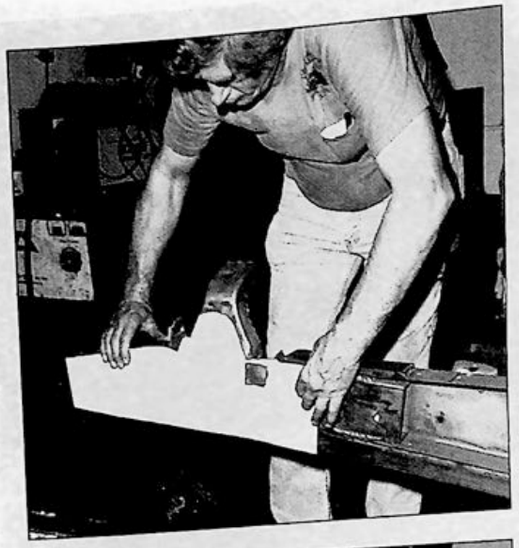


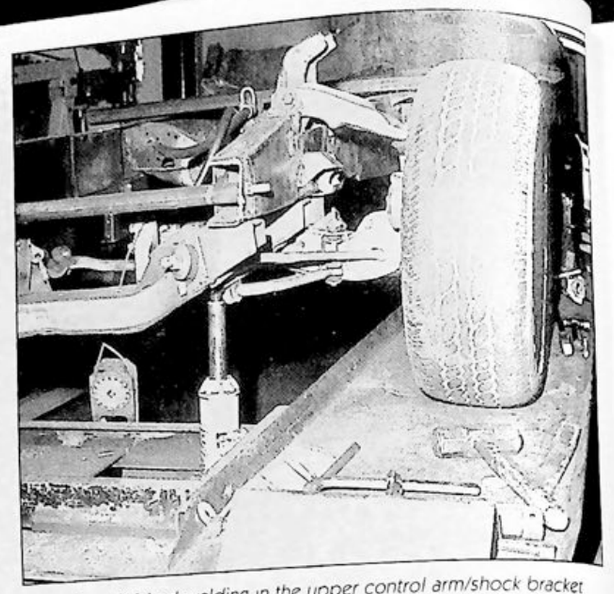


The frame rail, however, still needed a mount for the upper control arm/shock bracket as well as a tad more longitudinal strength. A length of rectangular tubing was cut, shaped, fitted and permanently welded into the rail. Again, please note that when the Duster suspension was removed at the wrecking yard, Terry asked that a large area around the unibody suspension structure be included so that he would be able to transfer the measurements to the new structure without changing any of the stock geometry.

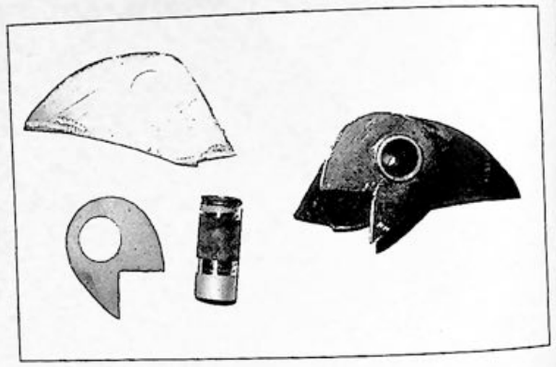
Throughout the process, Terry checked and re-checked the fore and aft measurements as well as the side-to-side measurements to ensure that the suspension mounting was square to the chassis... and the world. The large T-square is a drywall hanger's square. It works well when doing chassis modification.

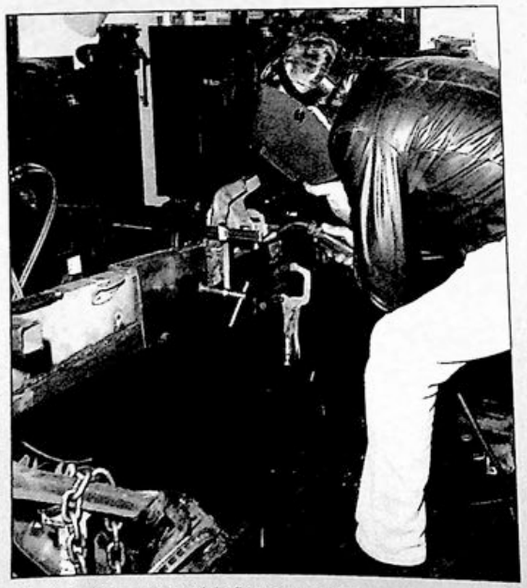




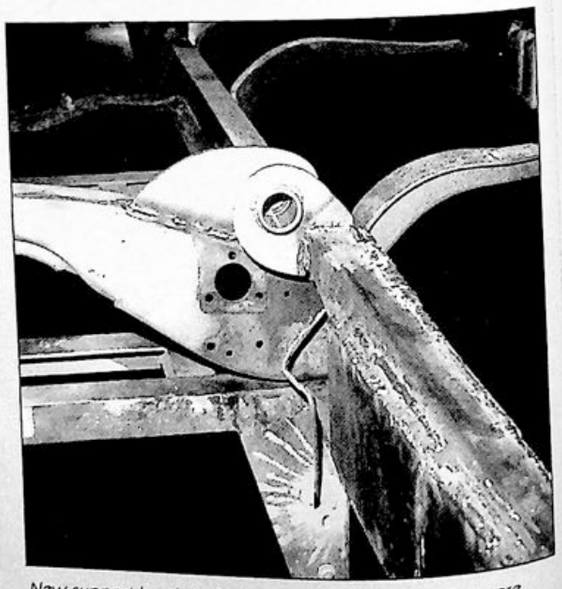


After Terry finished welding in the upper control arm/shock bracket fish-plates, he wanted to make sure Buford would have the right ride height, suspension travel and negotiating room for wheel alignment. The assembly was jacked up high enough to level the lower control arms, and (thank goodness) all demands could be met. Whew! Glad we didn't have to change everything after all this damn work!

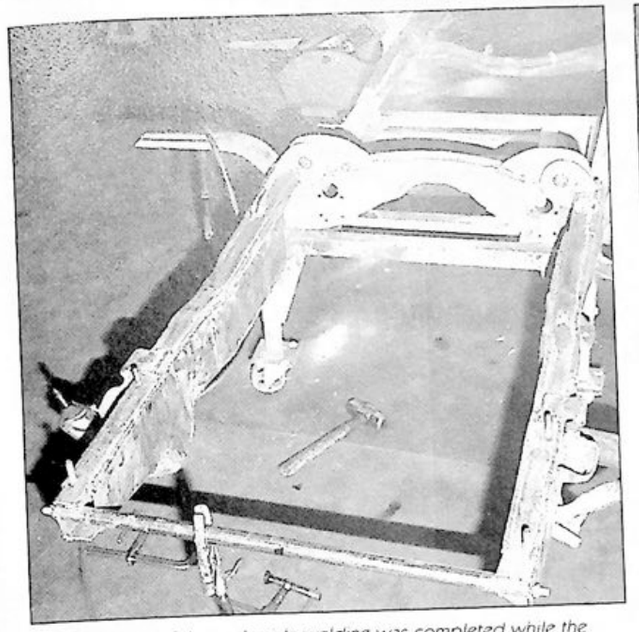




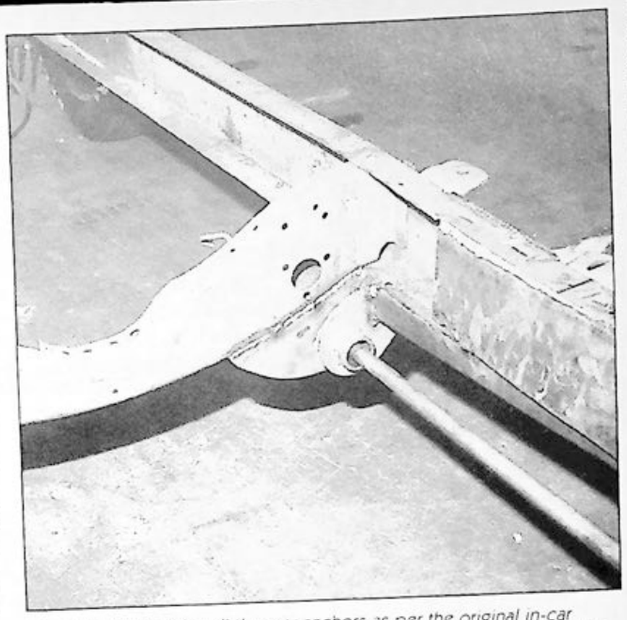
Finally, inside and outside fish-plate patterns were made, transferred to and cut from eighth-inch sheet. They were then welded to both sides of the rails, adding further strength.



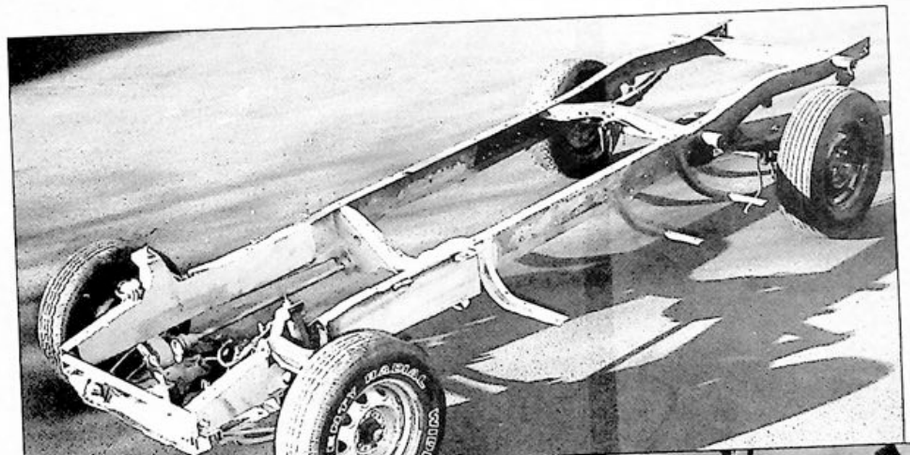
New support brackets for the rear torsion bar anchors were designed while the frame was right side up, but the suspension was removed and the frame flipped over for them to be welded into the chassis.

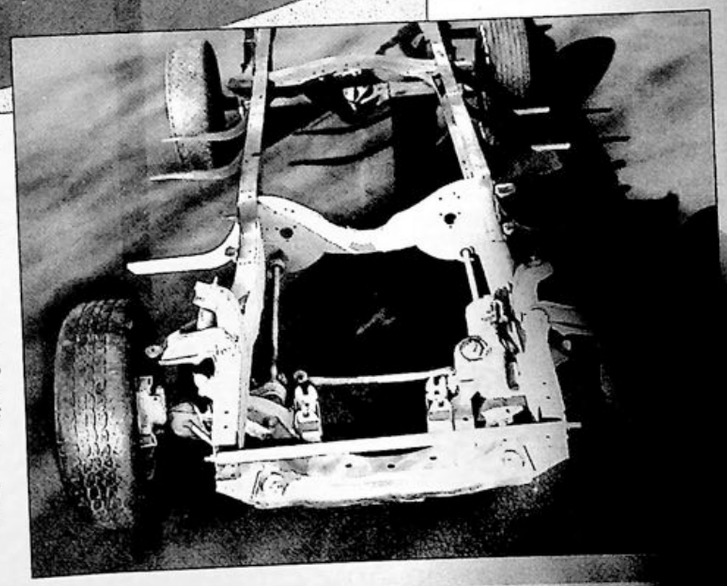


The remainder of the underside welding was completed while the chassis was upside down. This ensured a sound job



Care was taken to install the rear anchors as per the original in-car installation. Both front and rear anchors are therefore in phase and the torsion bars can be adjusted equally

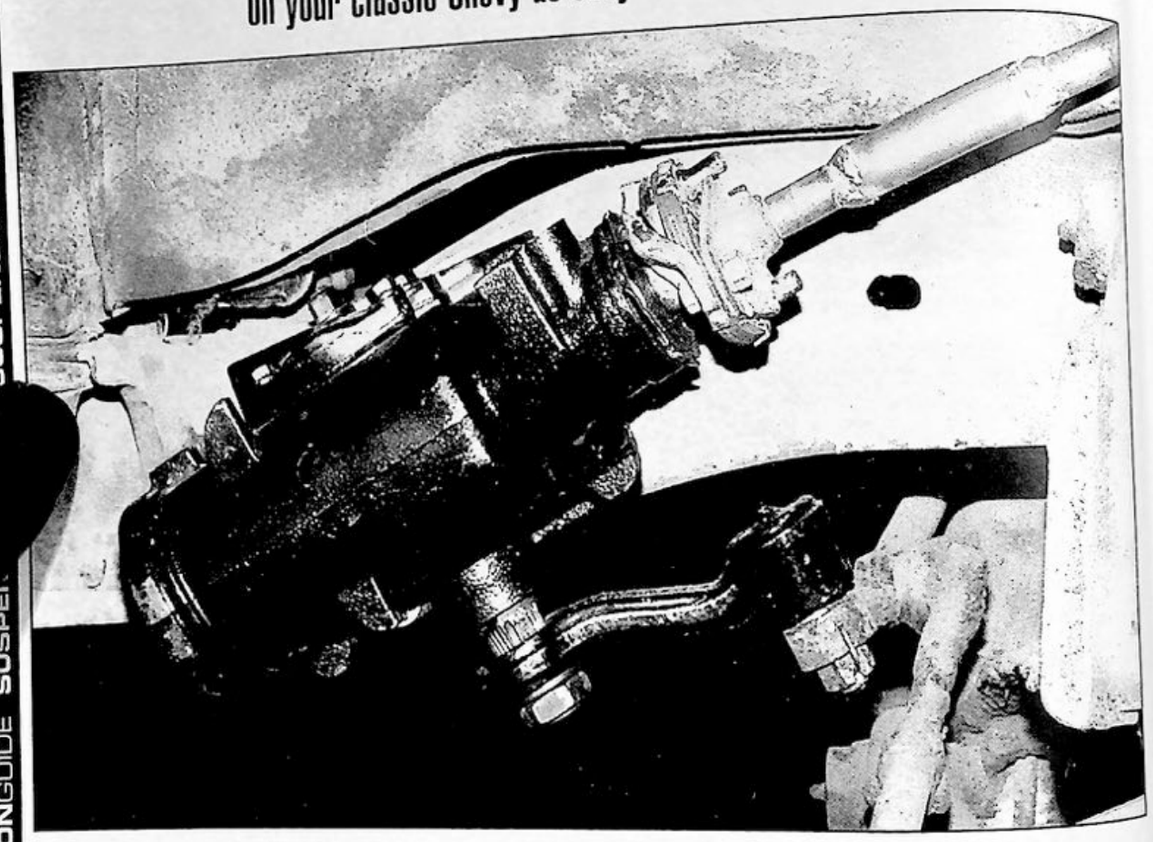




Buford's chassis is now back on wheels, and although the installation of the 1973 Duster parallel torsion bar independent suspension was considerably more involved than originally anticipated, it will undoubtedly provide a more efficient steering and suspension system than any comparable mid-size IFS. The welds, strong as they are, were not dressed down when these photos were taken. The chassis still has to be stretched and the rear end installed. The cosmetics will come later when all is done. For now, my only regret is that I can't give you a first-hand commentary on the truck's ride and handling just yet. But I have no doubt that the choice of the Duster IFS will ultimately prove to have been a good one. I am also fully aware that I did not give all the measurements as I followed Terry along. If you have a 1942-47 Ford Tonner and you think you might want to tackle this project on your own, Terry has kept all of his paper patterns. All the critical measurements have been noted on them. If you're interested, you can reach him at the Performance Corner. Now, let's see... what are we going to do about a rear suspension...

POWER PILOTING FOR 1960-'66 CHEVY TRUCKS

Classic Performance Products makes installing power steering on your classic Chevy as easy as one-two-three



BY BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK

If you are an owner of a 1960-'66 Chevy truck, you probably have wondered, at some time or another, what it would be like to have power steering. Of course, the hard-core custom truck fabricator will always be able to design something that will work using any number of products. But, something like that is indirect and more of a personal touch.

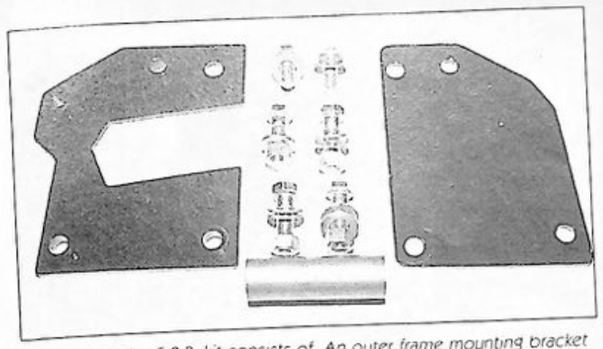
There have been a few folks who have made attempts to create a good kit that will provide 1960-'66 Chevy truck owners with power steering using GM parts. But, no one could come up with a kit that was as simple as one-two-three to install, as well as being installed properly and safely.

Well, as you would expect, the engineering minds at Classic Performance Products have designed, engineered, tested and are now producing a 1960-'66 Chevy truck power steering kit that is so perfect and easy to install, it almost doesn't seem logical that a truck this old can have power steering so easily.

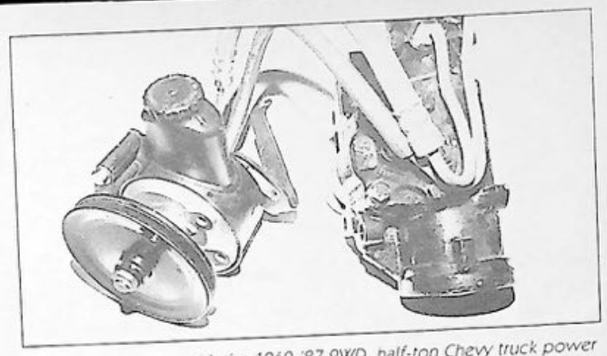
The kit includes two custom-made mounting brackets which attach on both sides of the driver's side front frame to locate the GM Saginaw power steering gearbox in nearly an identical location as you would find on a later model Chevy truck. The outer mounting bracket features the required mounting holes with welded-on spacers to position the gearbox in a straight line with the steering column.

Also included in the Classic Performance Products power steering kit are the required grade-eight hardware for mounting the brackets, and a steel sleeve that will connect the steering column shaft back together after it as been shortened. A one-half inch section of angle iron is also included to ensure that you have something to make a straight line with.

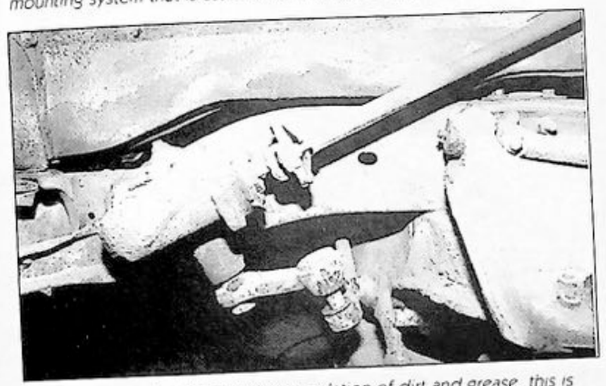
Not included in this kit is the actual 1969-'87 2WD, half-ton Chevy truck gearbox, hoses and power steering pump. You are required to provide these items while the kit allows you to install them with ease. When choosing your power steering gearbox, make sure that it is a 1969-'87 2WD half-ton truck model. Take note of exactly what year box you have because in 1976, Chevy changed to metric fittings on all its power steering units. This way you will be able to get the proper power steering hose kit from your local parts supplier. It is best to match up the power steering pump to the model of box and hoses you have to make the installation that much easier.



This is what the C.P.P. kit consists of. An outer frame mounting bracket with the proper holes and gearbox spacers to line the box up with the steering column. The other plate is to add more reinforcement to the mounting system that is assembled with grade-eight hardware.

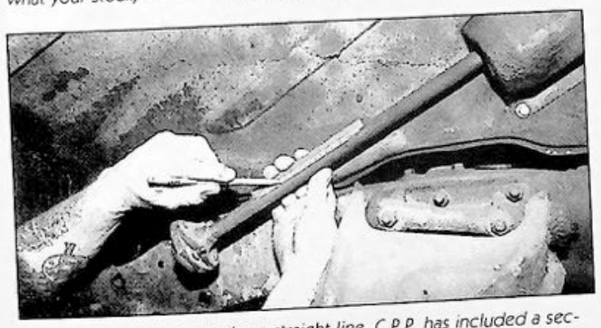


You must come up with the 1969-'87 2WD, half-ton Chevy truck power steering box and Pitman arm, matching hose kit and power steering pump. Take note of exactly what year box you have so that you can get the same year hose kit and power steering pump from your local parts supplier. In 1976, Chevy changed the gearbox fitting to metric.

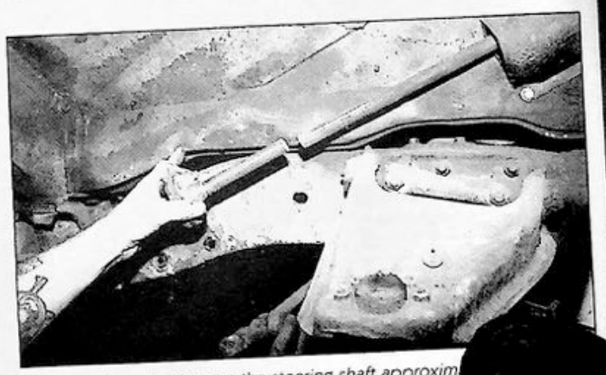


Aside from maybe the heavy accumulation of dirt and grease, this is what your stock, manual steering assembly looks like.

Obviously the first thing to do after you have properly jacked the truck up and secured it with sturdy stands, is to remove the old stock gearbox and Pitman arm.



To make sure that you scribe a straight line, C.P.P. has included a section of half-inch angle iron that is to be used to make a line as shown. This will keep the correct timing of the shaft after it is cut.

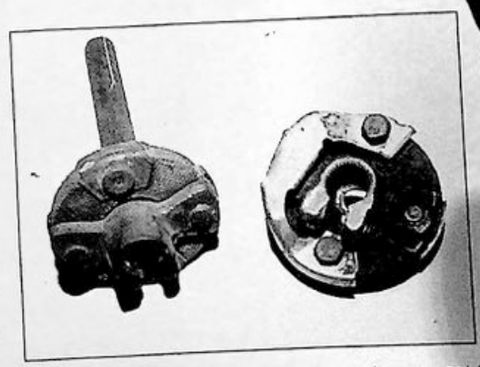


Use a cutting wheel to cut the steering shaft approxim... up from the rag joint coupler.

You will also need to acquire a new rag joint or steering coupler. If you are getting a used gearbox, get the rag joint that was originally attached. If you are buying everything new, then get a rag joint of the same year. For both the used or new joints, it is very important that you keep the two mounting bolts that connect the joint to the steering shaft collar. These are shoulder bolts and they prevent the installer from overtightening the rag joint during assembly.

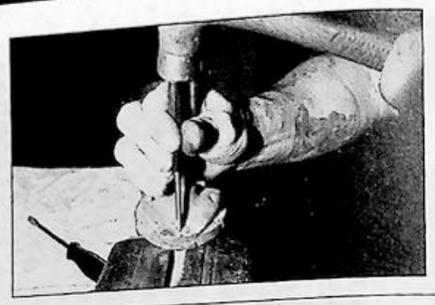
Classic Performance Product's new power steering kit is definitely what you 1960-'66 Chevy truck owners have been looking for. It is very easy to install in a short amount of time. Besides being geometrically correct, the kit also installs a little backbone other kits don't offer by providing a backing plate that installs on the inside of the frame.

With this in mind, stop thinking and give Classic Performance Products or Golden State Pickup Parts a call for more information. You won't regret it, and neither will your truck!



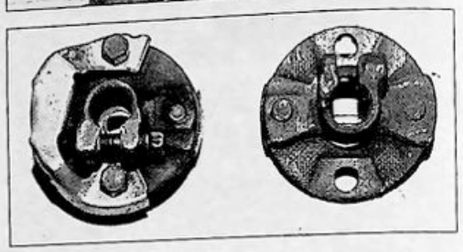
...der bolts which you should have gotten when you got the joint.

Because of the odd angle in which the rivets are placed, an air cutting wheel is used to cut the head of the rivet off.



A hole punch and hammer will knock out the rest of the remaining rivet.

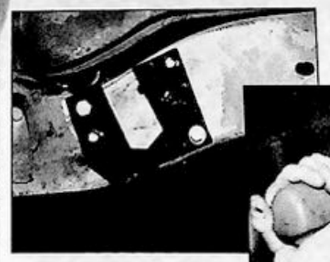
One of the shoulder bolts from the new power steering rag joint coupler is bigger in diameter than the stock coupler collar holes. You must make one of the holes bigger, which is easily done with a drill.



There is a visible difference between the old manual rag joint and a newer version for the power steering gearbox. Remember to get the same joint that came with your box or a new one of the same year

Bolt the rag joint coupler to the stock steering collar that you cut from the steering shaft using the shoulder bolts.

Back over to the truck, clean up the frame a little around the area that you will be working on. A disc sander will usually work best. As you will notice, there are factory holes in the frame already, two of which the C.P.P. kit uses



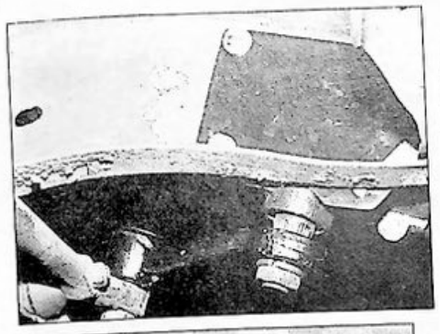
Install the outer mounting bracket as shown by inserting a bolt in the upper left hole and lower right hole. These are the factory holes which are used to position the bracket so that you can drill the two other required holes.

When you have the new holes drilled, reverse the bolts so that they are inserted from the inside of the frame. Three of the bolts extend outward as shown. The upper left hand bolt is still a bracket locater bolt so it remains installed from the outside. Also, take note of the lower hole that meets at the bottom of the frame. This hole is threaded because there is no frame to drill through.

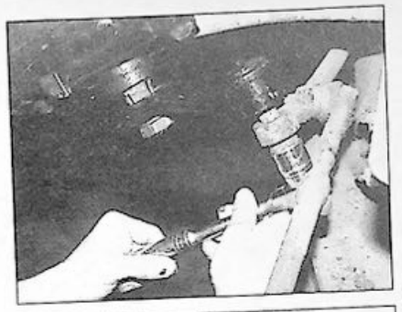
The matching mounting hole on the gearbox that meets the lower bracket hole now must be drilled out. The other holes on the box remain threaded. The drilled hole will have the mounting bolt inserted from the outside rather than from the inside of the frame.

With a helping hand on the inside of the frame, holding the three mounting bolts that are installed from the inside, install the power steering gearbox.

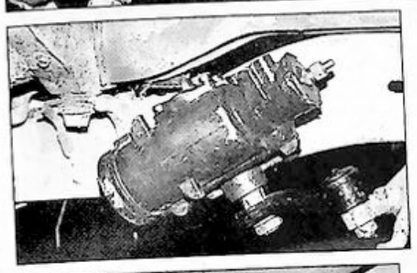
While someone tightens the inner bolts into the gearbox, notice that the lower hole that you drilled out is mounted with a bolt that is installed from the outside of the frame into the threaded bracket.



When the gearbox is mounted, recheck all the bolts to make sure they are tight. Also, now you can see just how great this kit is by the looks of the sturdy reinforcement backing plate.



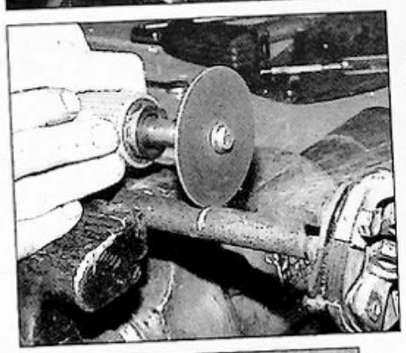
Now, install the pitman arm onto the drag link and tighten appropriately. Don't forget to install a cotter pin for safety.



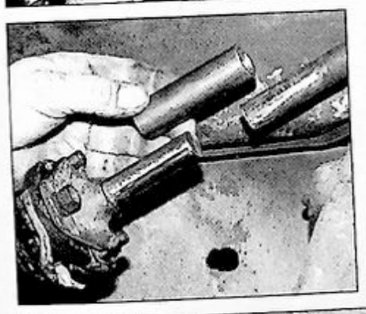
At this point, this is what you should have.

Classic Performance Products even includes a section of one-half-inch angle iron that is used to help you scribe in the previously made line on the steering shaft.

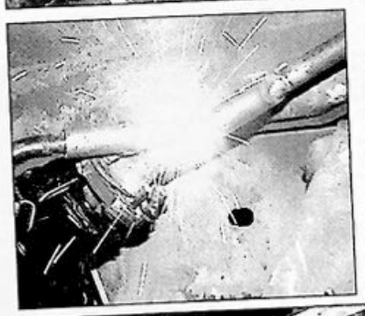
Take the six-inch shaft that you cut off with the collared end and loosely install it onto the gearbox. Roughly two inches must be cut off the shaft.



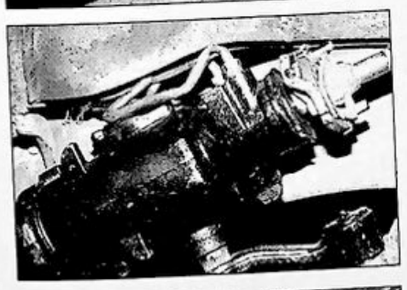
Install the shaft end into a vise and cut it on the mark you made with a cutting wheel.



After the shaft has been shortened, install it onto the gearbox shaft with the scribed lines matching, and tighten the locking bolt. There should be some kind of a gap between the two shaft ends up to about an inch. The provided slip collar will bridge the two shafts



Both ends of the slip collar are to be completely welded all the way around. It is very important that the welder ground be attached ONLY to the steering shaft. If you attach the ground to the frame, the bearings in the gearbox will arc.

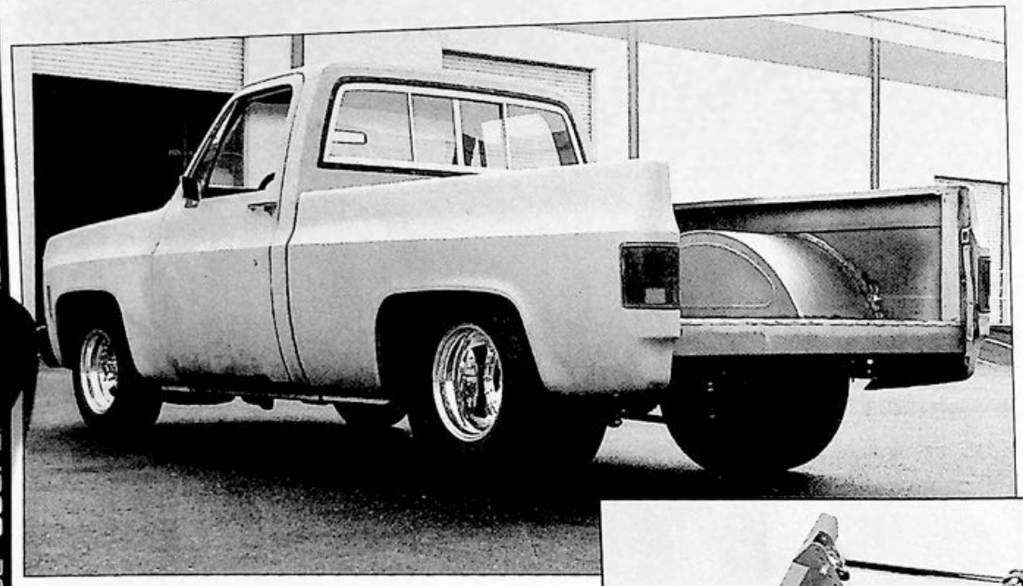


When installing the hose kit, you may have to trim away a very small portion of the inner fender lip for the hardlines to pass under it without obstruction.

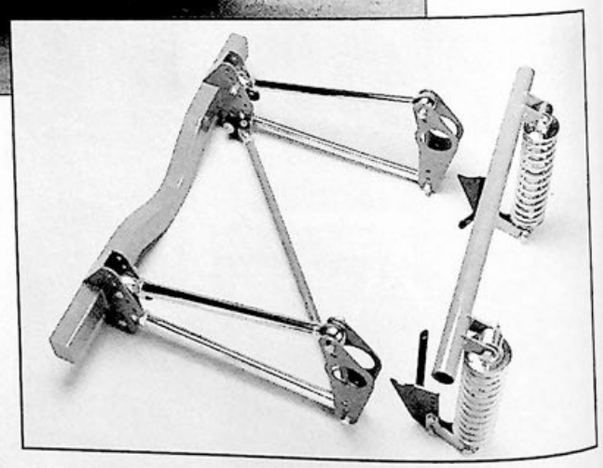
The last modification to perform is on the left hand bumper bracket. Because of interference from the gearbox plate, the bumper bracket will not install properly.

FOUR-LINK TRACTION FOR PRO STREET ACTION

A new Chassisworks pro street kit lets you trick-up your pickup



Here is the new Chassisworks Pro Street Four-link assembly, featuring chrome-plated link bars, Koni coil-over shocks and urethane bushings in all rod ends. The dropped crossmember and newly-designed front brackets let you install this suspension in any framed vehicle without the necessity of a complete subframe.



BY SKY WALLACE
PHOTOGRAPHY: GOOD COMMUNICATIONS

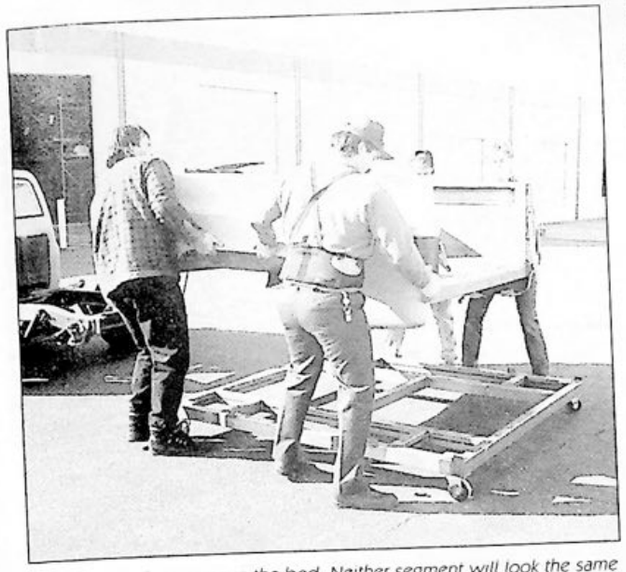
The next time you are out driving around in your truck, you might take a moment or two and consider its ancestor, the horse-drawn wagon. Horse power has given way to *horsepower*, direct-drive has been replaced by torque-producing transmissions, steel-belted wooden wheels have evolved into steel-belted radial tires, and that primitive leaf-spring suspension has, well, actually, it still works and looks just as it did so long ago.

But now, Chris Alston's Chassisworks has come up with some revolutionary improvements for this all-important, yet long-neglected area. After 20 years of designing and building race cars and components, this is the first four-link suspension designed by Chris Alston specifically for street use in a truck. And, as with all Chassisworks products, it has been engineered with the home builder firmly in mind.

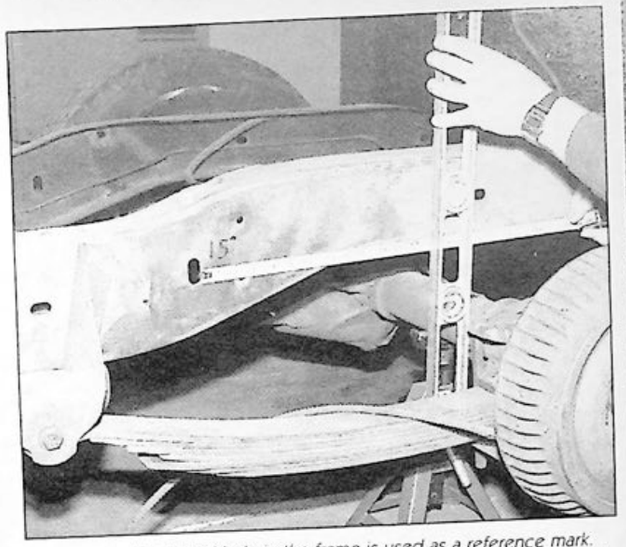
This project got started when a gentleman in California paid $300 for a beater 1974 Chevy pickup and drove it over to the famed Chassisworks shop to have a chat with Chris Alston. Envisioning a high-performance pro street truck that would see occasional duty at the drag strip, the customer laid out his requests.

He wanted fat tires and wheels out back without resorting to fender flares, yet the truck had to sit as low to the ground as possible. The rear suspension had to be able to handle and effectively harness the output of a heavily-massaged big block, yet still be comfortable and safe for everyday use. In addition, he didn't want to go to the trouble and expense of installing a complete subframe, so everything would have to co-exist with the existing frame rails.

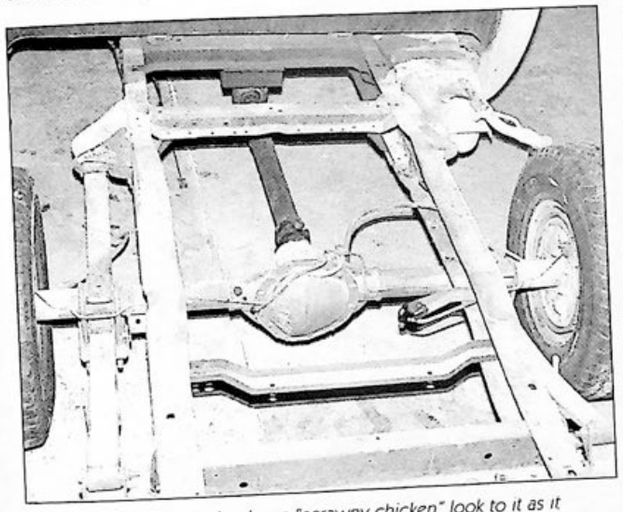
He had certainly gone to the right place. Along with its hugely successful business of designing, manufacturing and selling everything from bits and pieces of suspension and chassis components to complete chassis kits, Chassisworks is famous for using those same parts on the cars that roll out of its in-house fabrication shop, ranging from bracket-race and pro street cars to the awesome six-second, 200 mph Pro Modified doorslammers. So, rather than telling the guy "good luck" and sending him on his way, Chris Alston said something along the lines of, "H'mmm, sure, I think we can do that."



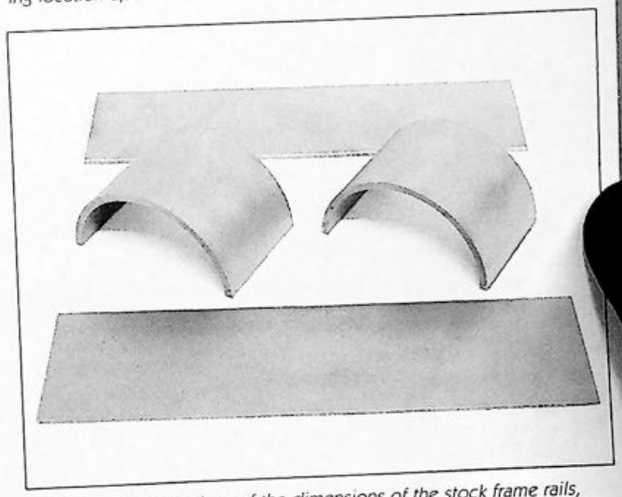
The first step is to remove the bed. Neither segment will look the same the next time they are rolled outside.



A conveniently-placed hole in the frame is used as a reference mark. The distance between it and the front of the axle housing is measured and recorded, a simple yet crucial step to guarantee the correct housing location upon reassembly.



The stock rear suspension has a "scrawny chicken" look to it as it awaits the removal of the gas tank and the arrival of the Chassisworks torches.



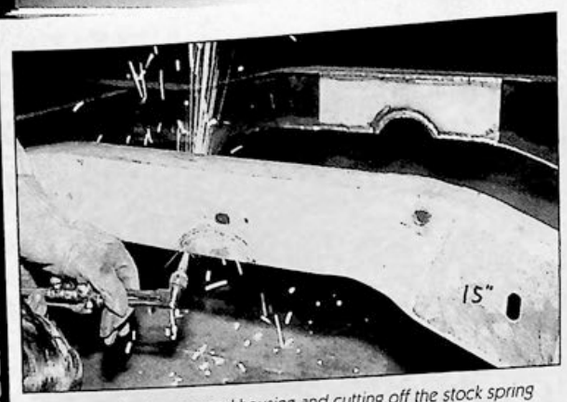
To bypass the limitations of the dimensions of the stock frame rails, this exclusive Chassisworks frame-notch kit is used to provide up to three inches of lowering capability.

Chassisworks is well aware of the differences between safe street suspensions designed in the standard way, and the four-link suspension of pro street and race applications. There's a lot of give and take when choosing a four-link suspension, most of which is determined by use on the streets. Of course, if you are going for big performance, then a four-link suspension is what your truck needs to succeed. But, keeping the constantly changing geometry in check can play havoc with one's mind. Generally, a track locator is positioned diagonally between the front four-link bracket on one side of the suspension and the rear bracket of the suspension on the other side. In drag racing cars, the link bars and the locator are equipped with rod ends, which allows everything to pivot as needed while keeping the rear end centered. But, putting these same components in a street application results in an extremely stiff, harsh ride, and everything tends to rattle and wears itself to death in a very short period of time. There's also the risk of the track locator binding up at some point in time. Aside from these considerations, there is also the matter of working within the truck owner's "Don't hack up the frame" constraints.

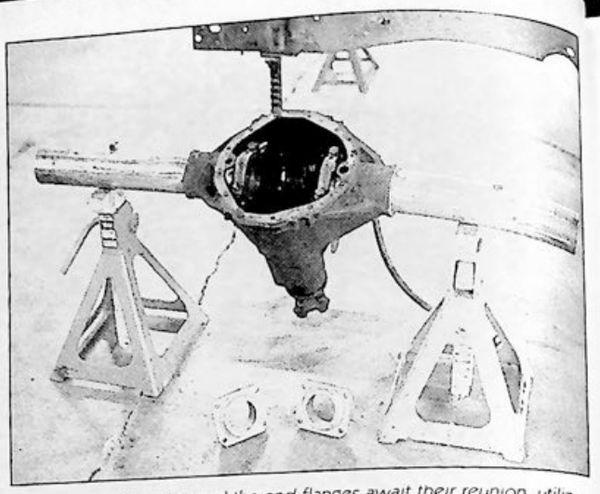
To solve the last problem, the four-link brackets were redesigned to mount onto the standard Chassisworks 3x2-inch box dropped crossmember, which mounts to the fra... new "U"-bend gussets. This notched bracket desi... revolutionary breakthrough which now makes... installation of the Chassisworks Pro Street Fou... stock frame, without the work and expense of ins... plete subframe.

The harsh ride problem is eliminated by the dev... a new billet-steel rod end featuring urethane bushi... steel sleeve, to replace the existing standard rod end... the track locator as part of the package, Chris designed... and trick double-clevis end for the locator, which allows... end to go through its full range of travel unhindered. The ... was also stuffed with urethane bushings at both ends.

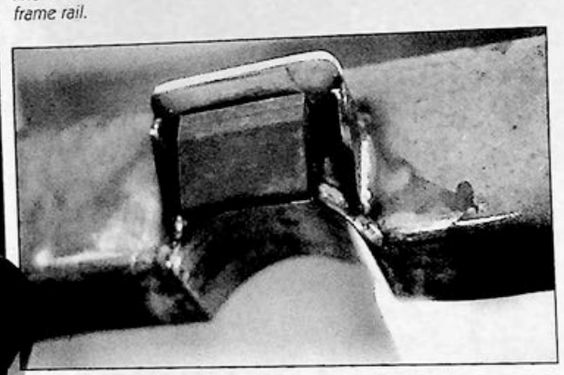
To keep parts from falling out onto the road, one threaded ... of each bar, including the locator, was replaced with a "we... eye." This makes one end rigid and one adjustable, so if the ja... nut loosens nothing will happen to your suspension. And, to ... as bulletproof as possible, all bar ends have been made wi...



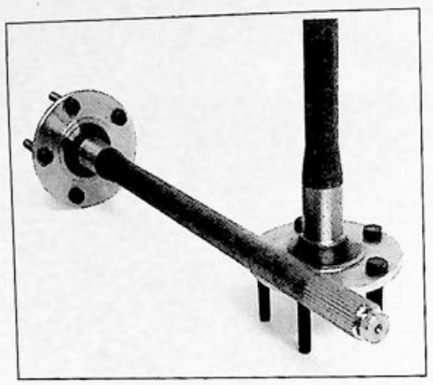
After removing the rear end housing and cutting off the stock spring and shock mounts, the modifications begin. If additional lowering is desired, the contour of the Chassisworks notch plate is marked onto the frame at the desired depth, and the frame is then cut along this line. The installed notch plates and frame gusset are visible on the far frame rail.



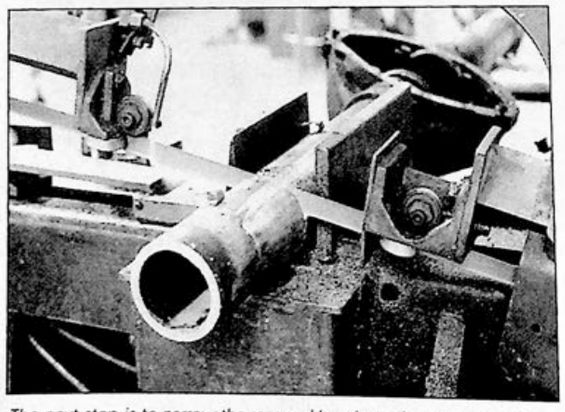
The narrowed housing and the end flanges await their reunion, utilizing the new Chassisworks rear-end narrowing jig to assure correct alignment.



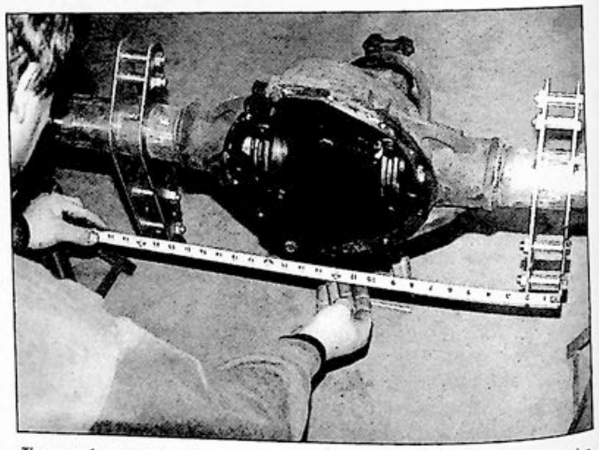
The stock rear axle snubbers are cut off of the frame, then relocated and welded directly to the frame above the new notches.



Shown here are the Moser "C" clip rear axles that will find a new home in the stock 12-bolt Chevy rear end after it is narrowed 14 inches. Moser also provided the studs and bearings, while the original rear drums and brakes will be retained.



The next step is to narrow the rear end housing. After the mounting flange has been cut off of the axle tube (a safe distance beyond the bearing seat), the housing is leveled once again and the desired length removed from each side.



The rear four-link brackets are positioned the correct distance from the rod ends of the axle housing to clear the frame, twenty-four inches outside to outside.

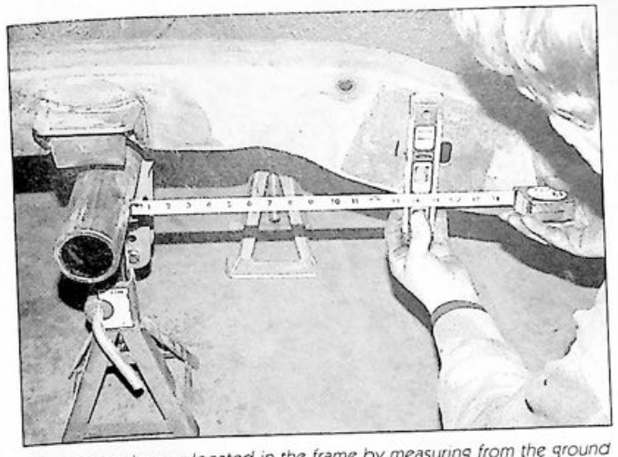
thick one-inch shanks, which will easily stand up to the power of blown or nitrous oxide-equipped engines.

And for those inclined to get their trucks as low to the ground as possible, Chassisworks has developed a new frame notch kit. This enables one to safely and easily bypass the limitation of the existing frame rail dimensions, and drop the truck those critical few extra inches closer to the ground.

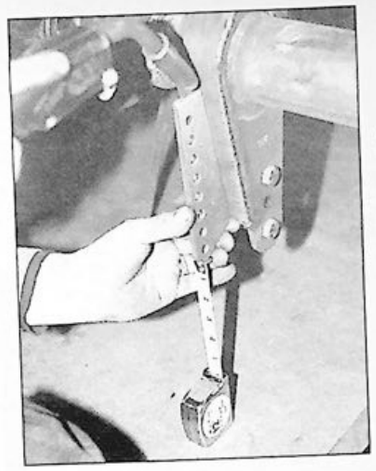
Chris Alston estimates that anyone proficient in the use of a tape measure, level, cutting torch and welder could accomplish the modifications shown here, including narrowing the rear end housing, in two or three weekends. At that point, the back half of the truck would be capable of handling even a 1,000 horsepower engine with no fear of damage to the suspension.

Chris also mentioned that after undergoing such a procedure, a truck has definitely been taken out of the "beast of burden" category. As he put it, "The wheel tubs make the bed a lot smaller, and when you notch the frame, it becomes a bit weaker. If you don't notch the frame, you could carry more weight, but the spring rate isn't set up for anything but hauling a few friends quickly."

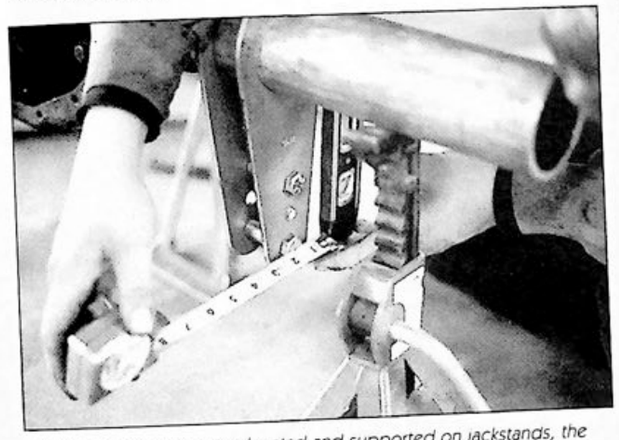
As Chris Alston puts it, "I think the best way to look at it is that now you've got a really cool ride, and you shouldn't be using your pro street truck to carry stuff like cinderblocks and bags of concrete around, anyway!"



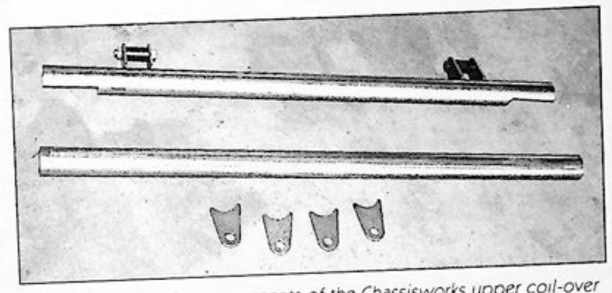
The housing is now located in the frame by measuring from the ground to the axle centerline to position it at the correct height, measuring from the front of the housing to the original reference point on the frame to locate it properly front-to-back (shown), and equalizing the distance between the ends of the axle housing and the sides of the frame. The housing will now be centered in the frame.



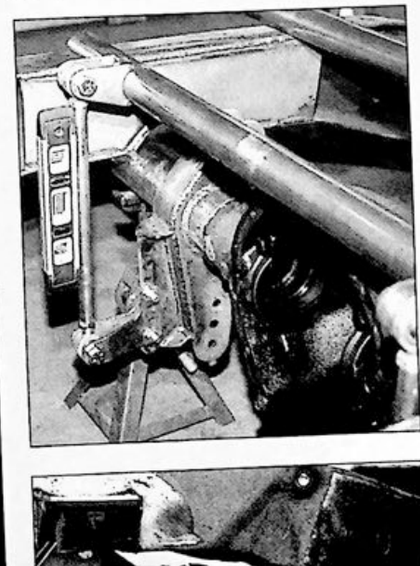
After the gusset is welded, the shock bracket is repositioned, measuring from the ground to the bottom of the bracket, and tack-welded into place.



With the rear end housing leveled and supported on jackstands, the four-link bracket is centered under the housing by measuring from a level on the front of the housing to the center of the lower bolt hole, with the correct distance being half of the outer housing diameter.

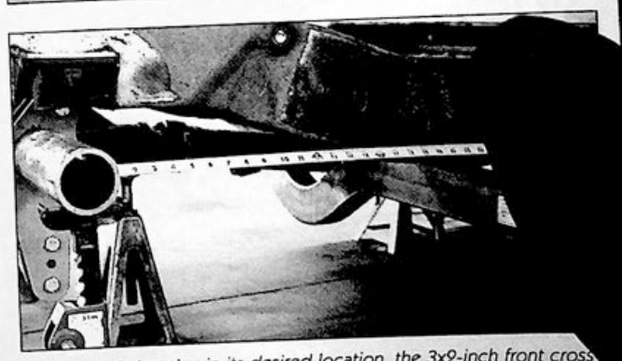


Pictured here are the components of the Chassisworks upper coil-over shock mounts and crossmember, and the assembled and trimmed version that was used on this truck. The spacers are included in the kit.

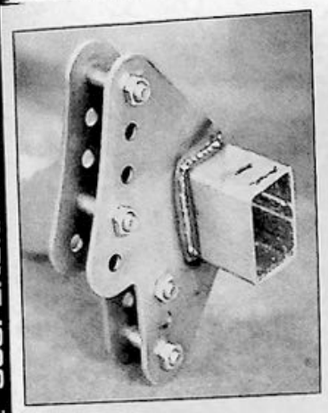


With the brackets properly aligned and the upper shock mount crossmember trimmed to fit on top of and in between the frame rails, the "shock simulator" (a bracket rod the length of the shock at ride height) is bolted between the upper and lower shock brackets and leveled at both ends. The crossmember is then welded to the frame.

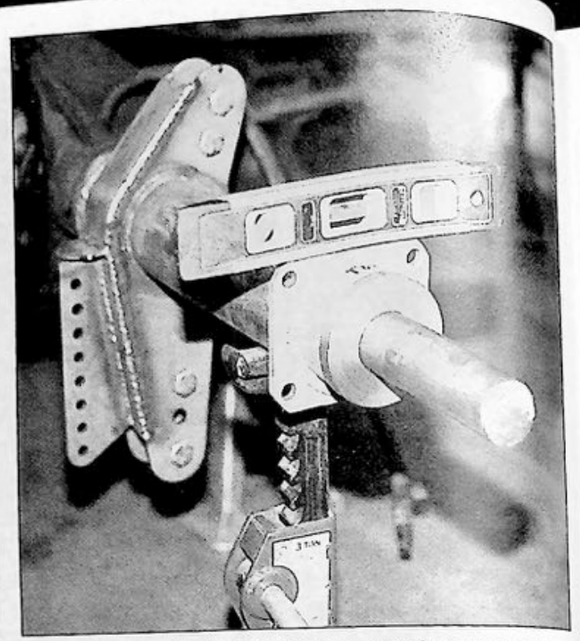
Before welding a gusset plate to the rear of the four-link bracket, the lower shock mount is positioned, leveled and scribed for cutting along the back edge of the bracket.



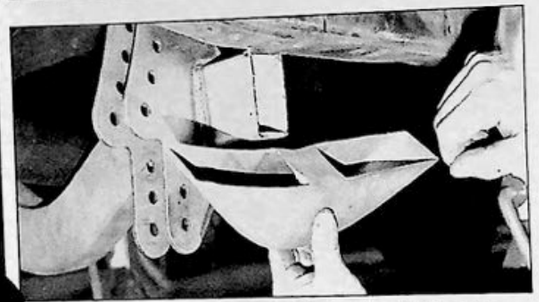
With the axle housing in its desired location, the 3x2-inch front crossmember is placed under the frame and squared up the proper distance from the housing, with the lowest part of the crossmember be directly beneath the driveshaft.



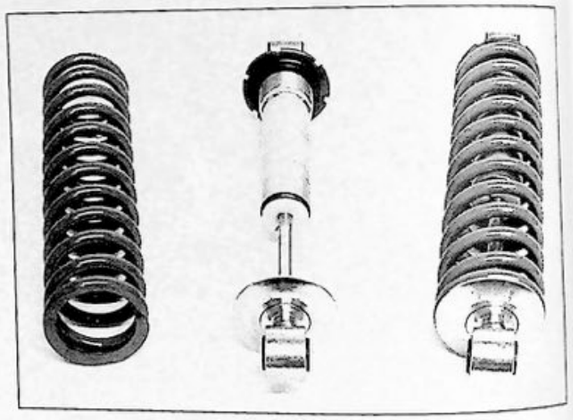
This is one of the Chassisworks exclusives that permits the installation of their new Pro Street Four-Link in a stock frame truck. The notched front brackets are designed specifically to fit onto the 3x9-inch boxed tube used for the dropped crossmember. They are attached to the crossmember to match the width of the brackets on the rear end housing.



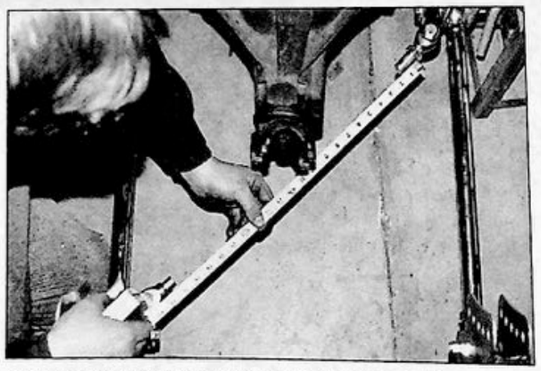
With all the suspension brackets welded onto the housing and the Chassisworks rear end narrowing jig in place, the end mounting flanges are centered and leveled prior to being welded back in place



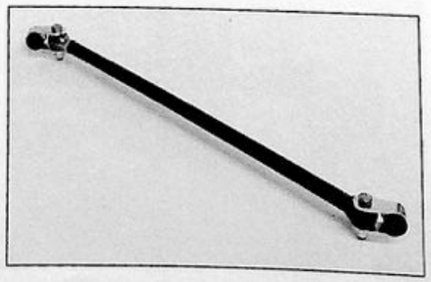
Once the crossmember is trimmed and the front four-link brackets welded in place, it is repositioned and installed under the frame. At this point, the special "U"-bend gusset is attached to the frame, and the crossmember end is then welded to the gusset.



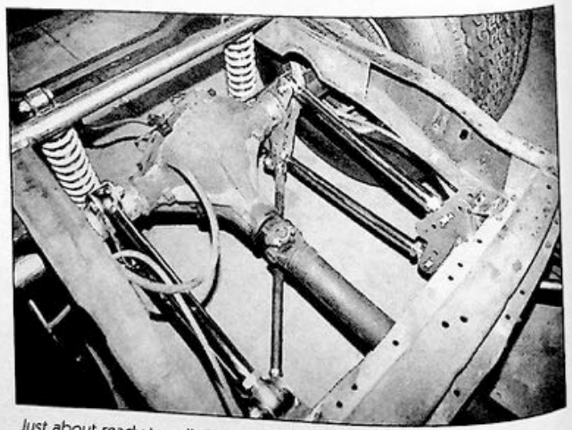
Koni provided the adjustable Pro Street coil-over shocks, which are now surrounded by Chassisworks 200-lb. springs.



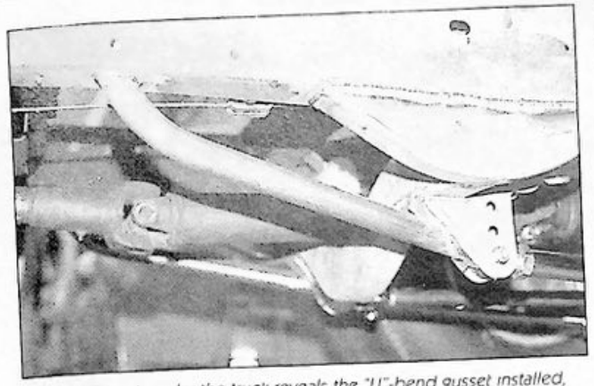
With the lower link bars installed, the distance between the new Chassisworks double-clevis rod ends is measured for the installation of the track locator. After being cut to size, the locator tube will be welded to the rod end on the front bracket and threaded into its partner at the rear.



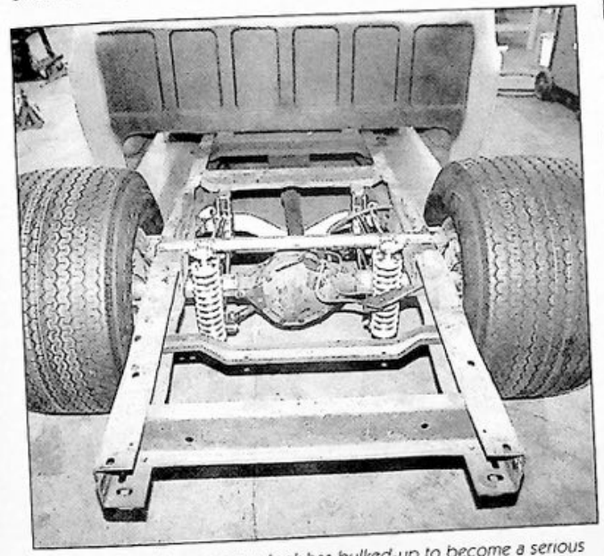
This is the unique double-clevis Chassisworks track locator, which can pivot in any direction without binding up. This eliminates the side-to-side shifting of the rear end inherent with the commonly used panhard bars in street-driven four-link vehicles, and the urethane bushings in the rod ends contribute to an amazingly smooth ride.



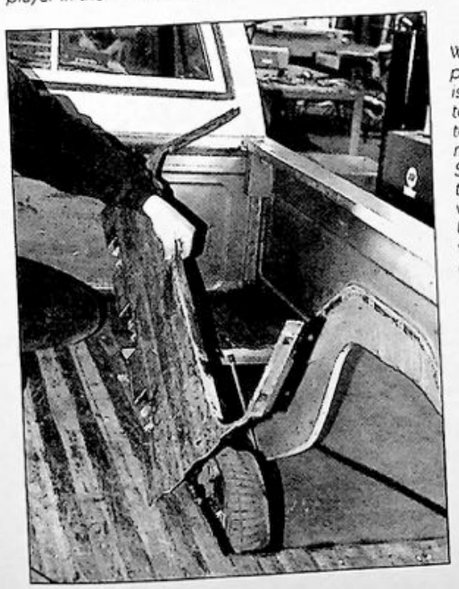
Just about ready to roll. The narrowed stock housing, four-link bars, track locator, Koni coil-over shocks, Moser axles, stock drum brakes, new billet-center Weld Pro Star Truck wheels and fat Mickey Thompson tires have all been attached in their proper places. Once the brake lines are installed, the chassis is complete.



Dropping back under the truck reveals the "U"-bend gusset installed, along with another brace welded between the frame and the bottom of the front four-link bracket. A small gusset plate, not visible from this angle, is also attached between the top of the bracket and the stock crossmember, helping to hold the assembly rigidly in the frame.



The former stock suspension look has bulked-up to become a serious player in the Pro-Street game!



With the suspension finished, it's time to cut the bed to fit over the massive M/T Sportsman rear tires, which were removed before the bed was set back on the frame. The bed floor is cut out even with the outside of the frame rail; the new tub is then centered over the axle, and the front and back edges are traced onto the bed floor for cutting edges.

The new heavy-gauge steel truck tub is then placed in the floor opening, and its contour traced onto the inside of the bed. This line is used as a guide for sanding the paint to allow for clean welding. The tub is also marked for cutting to match any contour the bedwall may have

Both wheel tubs are now welded in place. For stepside trucks with wood floors, the Chassisworks truck tubs come with angle strips that rivet to the tub and screw into the floor.

The complete truck awaits its successful test run. It's plain to see that Chassisworks has created a killer pro street kit that will turn any beater into a steam-rolling street predator, and it's all in kit form and designed using state-of-the-art technology. Now it's time to cruise!

BRAVE NEW WORLD

Lowering the 1997 F-150

BY KEVIN BOALES
PHOTOGRAPHY: KEVIN BOALES

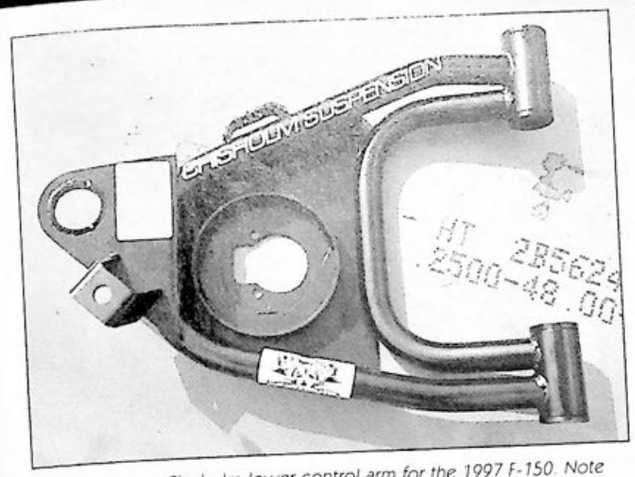
We all know by now that "the I-Beams have left the building." Ford's all-new F-150 is built with what the company calls "SLA" front pieces — their acronym for Short/Long Arm front suspension. As it turns out, there are bound to be some difficulties for the aftermarket in properly lowering these trucks, despite the fact that the new suspension appears to make things easier than in the past for those of us dedicated to the Blue Oval. The complications include the design of the spindle assembly, which cannot be mutated into an aftermarket dropped piece as can the Chevy counterparts.

There are two main reasons for this: the spindle's "spud," the part that sticks out and becomes the "axle," is located almost exactly in the center of the spindle from top to bottom. For strength, the ball joints are located as far apart as they can be and still fit within a 16-inch wheel, which is standard equipment on the new trucks. The clearance between wheel and ball joint, especially at the lower joint, is very tight, prohibiting any movement of the spud upward and away from that lower ball joint. The second problem is that Ford mounted the lower ball joint in compression, meaning it is already above the lowest part of the spindle. In the past, flipping the lower control arm above the bottom of the spindle was one way to gain clearance at the lower ball joint. That option isn't available on the new Fords.

The only practical way to lower the front end of these trucks is to build a dropped lower control arm, and Chisholm Suspension was the first to complete their research and development of this new part. The arm by itself provides a full two-inch drop, and a shorter-than-stock spring allows the nose of your Ford to descend even farther.

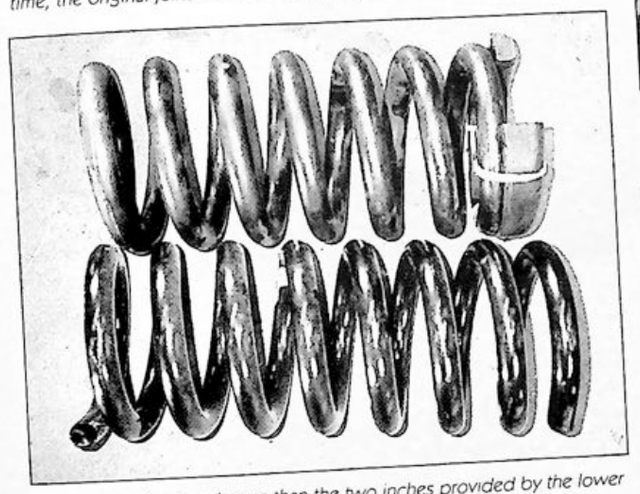
For the rear of the truck, Chisholm has created a leaf pack that drops the bed just enough to match the front, with no sacrifices in spring rate. A thicker-than-stock load leaf rests at the bottom of the pack to support additional weight when the truck is loaded. Essentially the spring pack is de-arched from the stock arrangement. If you want to go lower than the Chisholm package allows, or intend to flip the axle, you'll need to C-notch the frame. On the truck we photographed for this article, which was headed for Japan the following week, the ride height came down plenty without a notch.

The really good news about dropped lower control arms for the front of the truck is that the geometry is unaffected, and there is usually a minimum amount of travel loss. After Chisholm lowered the SuperCab shown in these photos, they installed the same arrangement on our *Truckin'* project PN96, seen on the cover of our March 1996 issue. The result is a completely driveable — and low — F-150. Incidentally, there are other complications concerning the wheels on these trucks — see the sidebar on that topic.

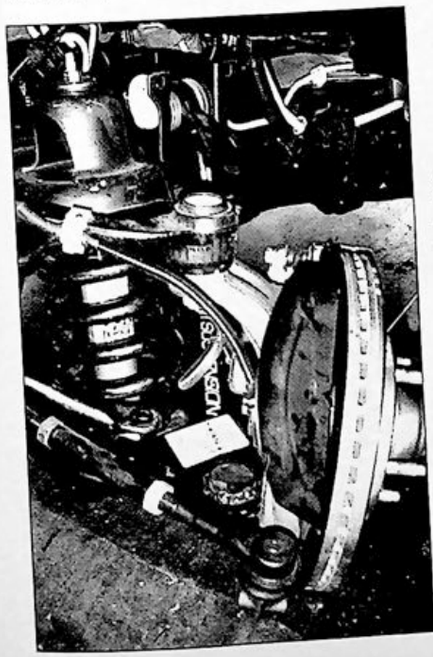


This is the new Chisholm lower control arm for the 1997 F-150. Note that it utilizes the factory ball joint (not installed in this photo) from the original arm. That's because the joints are hilariously expensive, and they're designed to go 150,000 miles right from Ford. Most of the time, the original joint will be in great shape.

In this photo, Brad is installing the Ford joint into the Chisholm lower control arm, using an impact gun and an installation kit that every front end shop has on hand.



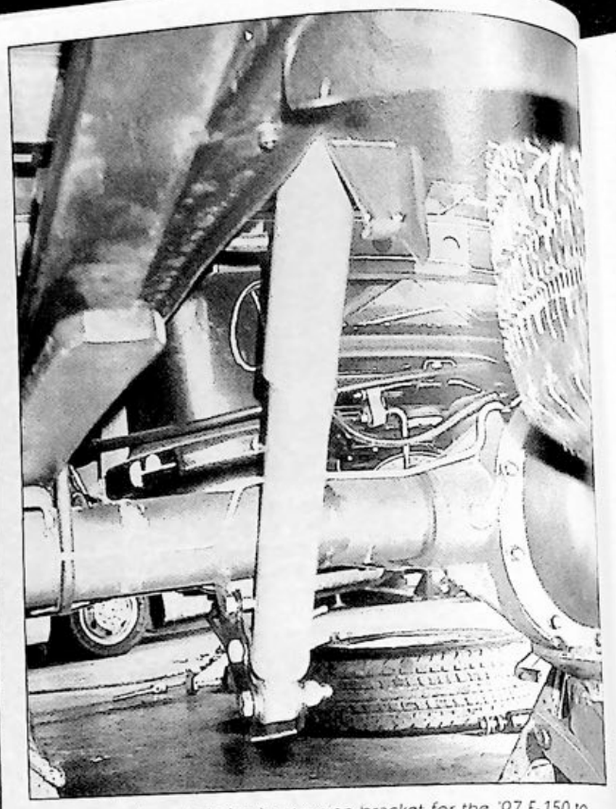
To lower the front end more than the two inches provided by the lower control arms, a shorter spring was used for a total of 3-1/2 inches.



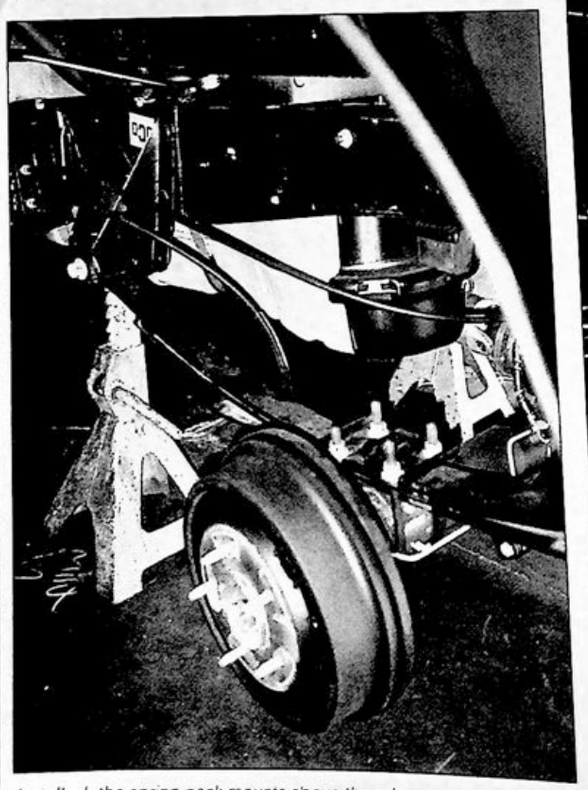
In this photo, you can see the problems that preclude using a dropped spindle. Note the lower control arm is already positioned above the lower joint, and the axle, or spud, is just about at the center of the spindle. There is no clearance that would allow a dropped spindle to work.

Here's a detail of the inner end of the Chisholm control arm, show the double-tube design and the overall precision of the arms. T were completely computer-designed and fabricated, with the c tion of the welds — they're still done by hand.

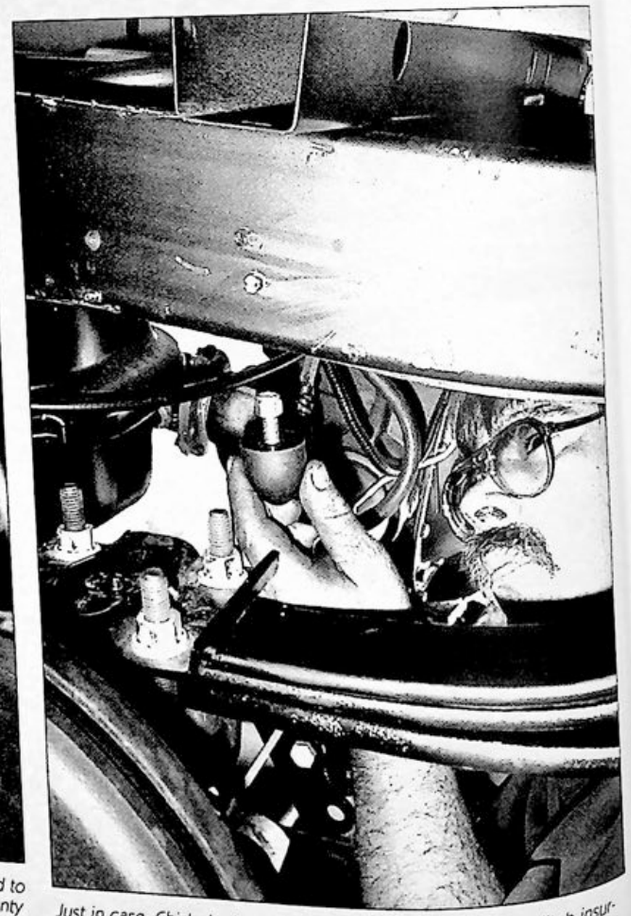
Here you can see the difference in the arch of the stock spring compared to the Chisholm spring pack. The new pack has a far beefier helper spring to handle the weight when needed.



Chisholm makes a trick shock extension bracket for the '97 F-150 to restore the shock angle after installing the spring pack. It allows the use of the stock, full length shock, or Chisholm's own high rebound units.



Installed, the spring pack mounts above the axle, so you won't need to notch the frame unless you want to really slam the truck. There's plenty of clearance between the frame and axle this way.



Just in case, Chisholm installs these short bumpers as last-ditch insurance against totally bottoming the frame against the axle.

Here's the first article — a brand-new SuperCab that will make a quick stop at the Goodyear alignment shop around the corner from Chisholm, and then depart for Japan.

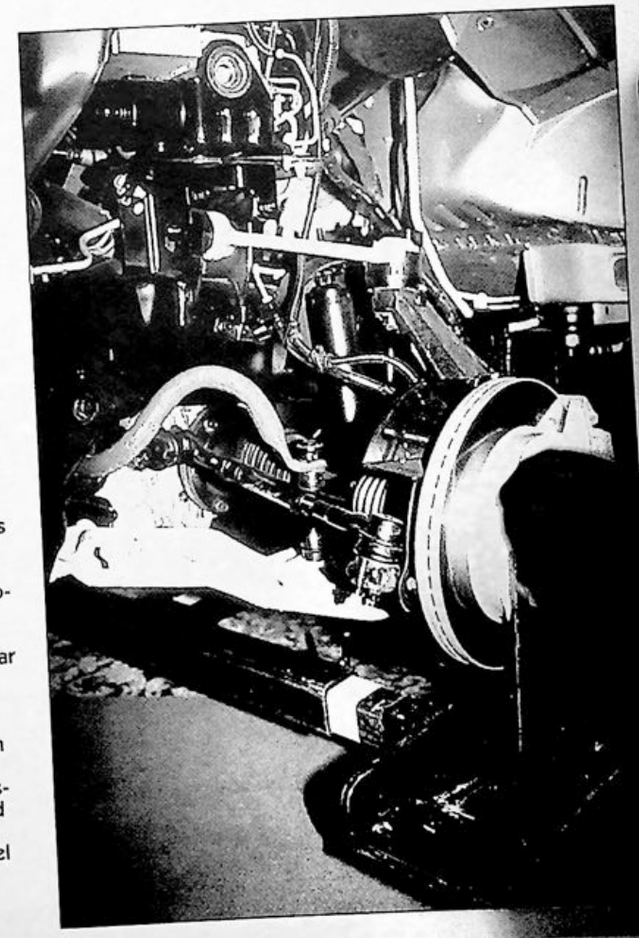
THE OTHER PROBLEM WITH THE NEW F-150 — THE WHEELS

There are two methods commonly used to attach wheels to a vehicle: Lugcentric or Hubcentric. The lugcentric method uses tapered lug nuts that clamp the wheel to the hub and center the wheel at the same time. A hubcentric arrangement centers the wheel on a finished outer diameter, leaving the lug nuts only one purpose in life — to clamp the wheel to the hub. In the case of the new Ford, the factory wheels are mounted using a hubcentric method. In the photo, you can see the large central hub has a finished outer diameter. The factory wheels have a precise bore that locates the wheel relative to the hub, and the lug nuts are actually two pieces; there is a captive washer that floats between the nut and the wheel face.

Currently, only a handful of aftermarket wheel makers offer alloys for these trucks. Those companies include Colorado Custom, who built the twenty-inch alloys for our show truck; Center Line, who built the 17x8-inch billets that we use on our project truck between shows (the Center Lines, at less than 18 pounds, weigh less than half of the Colorado Custom pieces); Ultra Wheel; and American Racing. The Center Lines utilize the factory lug nuts and are true hubcentric wheels, while the other three companies use a lugcentric attachment.

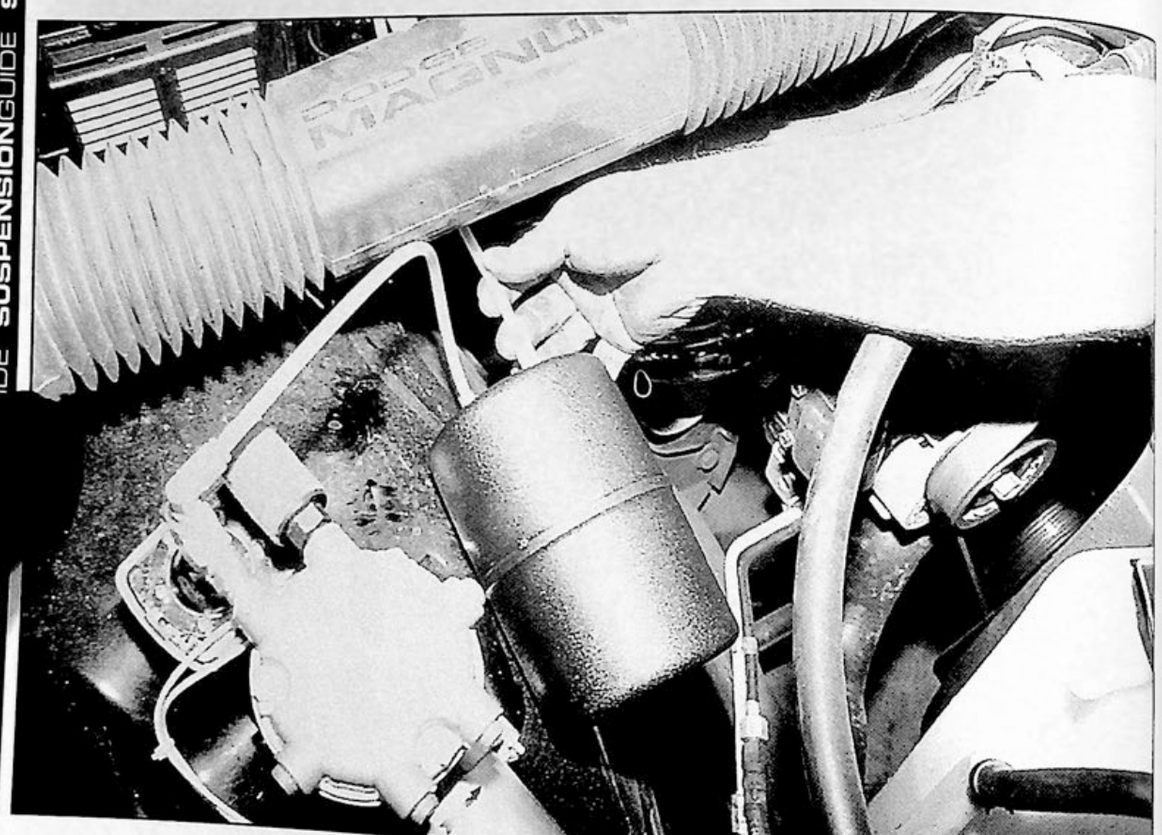
The pitch on the Ford's studs is also different — it is far more coarse than earlier studs, necessitating a much higher torque figure, at 100 lb/ft., than typically required. As punctuation, the bolt circle is five-on-135mm, which has absolutely nothing in common with existing wheels.

Lastly, there is the problem with the backspace necessary to clear the new, larger calipers and rotors found on the F-150. As you can see in the photos, the calipers actually extend slightly outboard of the wheel mounting face, so the rear of the wheel center must provide relief to clear it.



RIDING ON AIR

Chisholm Suspension's full-time rear air ride



The air holding tank and compressor were wired up and the air lines routed over them and plugged in. If you would like more info on their line of Dodge Ram lowering components, or more info on the full-time air rides, give them a call. Tell them we sent you.

BY BILL TURNER
PHOTOGRAPHY: COURTNEY HALOWELL

Air bags — or air springs, to use the right terminology — have become the latest high tech suspension in the aftermarket world. You see them everywhere, from high dollar street rods to stock pickups. You also hear pros and cons on how good (or bad) they are.

Well, the only failures I have seen have been brought on by a bad installation. Most of the failures are not caused by the bags, but by the air lines themselves rubbing through some place or getting too close to the hot exhaust.

I personally know of a Chevy dually that has been running full-time rear air ride for about six years and has never had a failure. This truck is a daily driver and makes weekend River trips. Matter of fact it's on engine number two since the air ride has been installed. I think it's safe to say that's about 200,000 miles.

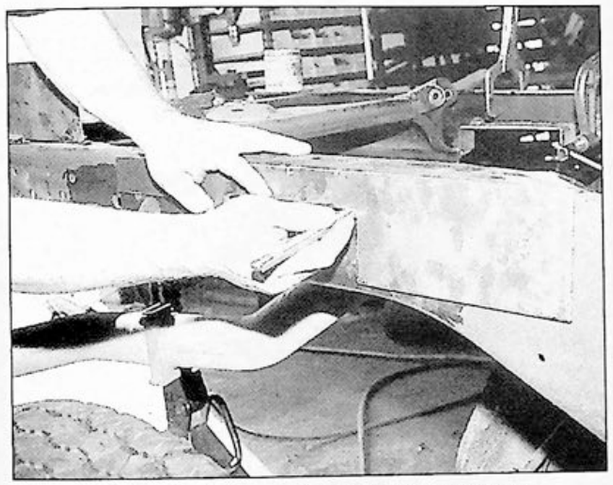
The air springs that Chisholm uses in their air ride systems are the same springs used in big rigs. Each spring can handle roughly about 5,000 pounds on its own.

Each air ride system comes with a compressor, holding tank for air, special air lines, fittings, shocks, air springs, panhard rod, special half leaf springs, C-section (if needed) and upper air spring mounts. These kits can be installed at Chisholm or by one of their authorized dealers.

Follow along as we check out firsthand the one being installed into a new Dodge Ram.

First step was to remove the bed to ease the installation. Then the rear leaf springs were removed along with the stock shocks.

A small C-section for air bag clearance also has to be made.



Since this Dodge is to be lowered the frame will have to be C-notched for rear end clearance. Using a pattern, the C-section is traced onto the frame

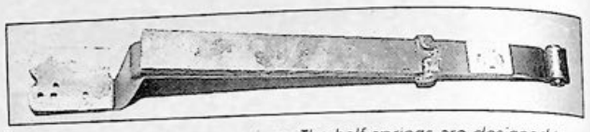
The C-section support plates are bolted into place and all the mounting holes are drilled.

Using a plasma cutter the section is cut out.

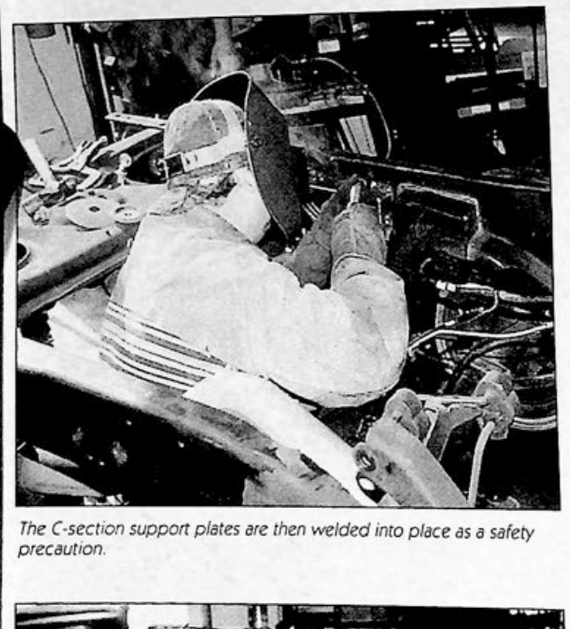
Grade eight hardware ties the C-sections into the Ram's frame rails.

The upper mounting brackets for the air bags are then bolted into place using kit-supplied grade eight hardware as well.

The exhaust system from the muffler back needed to be cut off for rear end clearance. This only has to be done if you are lowering the rear as well as adding the air ride system.

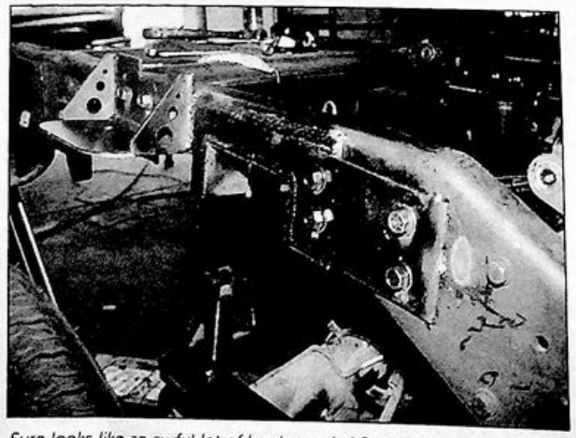


This is one of the new rear springs. The half springs are designed to control axle wrap and to act kinda like a ladder bar to hold the rear end in place just like on a big rig.

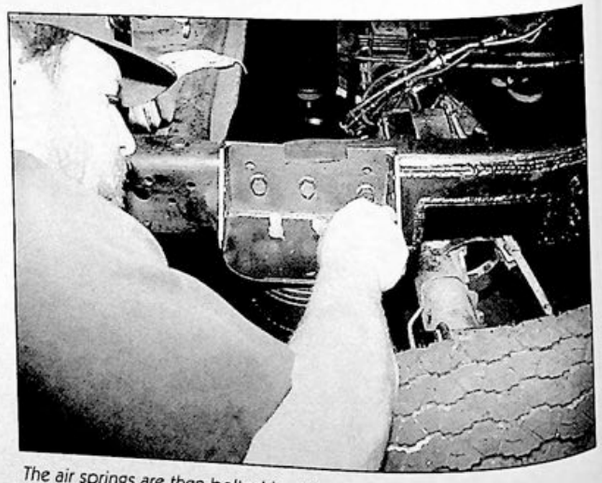


The C-section support plates are then welded into place as a safety precaution.

The springs are installed into the front hangers on the frame like the stock springs. Then the rear end is bolted into place with the factory U-bolts just like it was before.

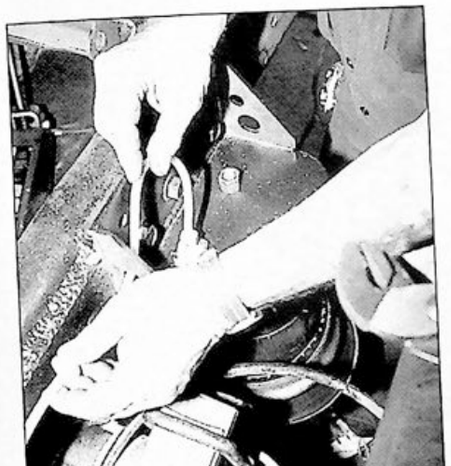


Sure looks like an awful lot of hardware, huh? I don't think any of this is going to break or come loose.



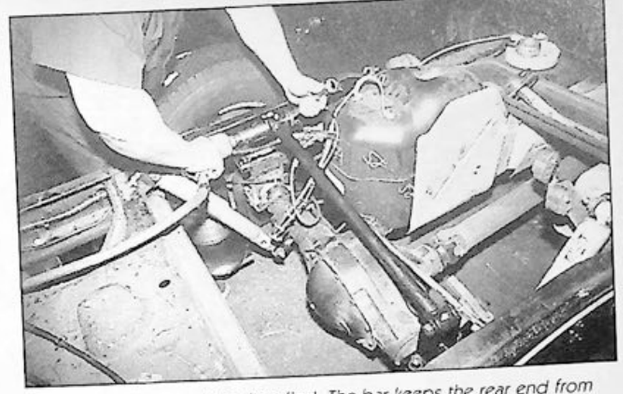
The air springs are then bolted in at the top...

...and bottom. It's a very simple install, you just have to have the right tools and a whole weekend to do the job. A few friends might help as well.

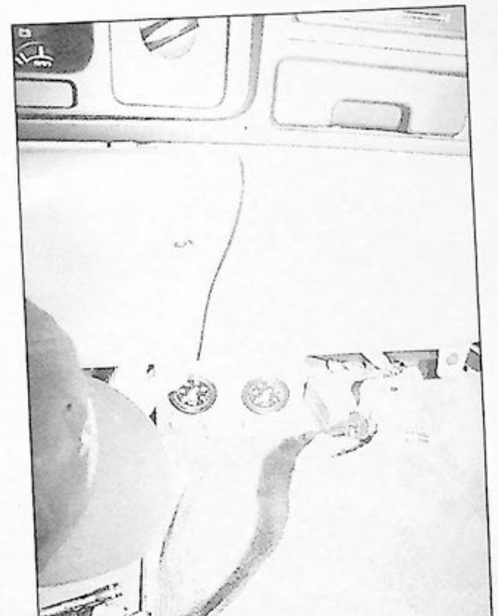


Next all the air lines are run up the engine bay where the compressor and air tank will be mounted. The line must not rub on anything or get near any heat source.

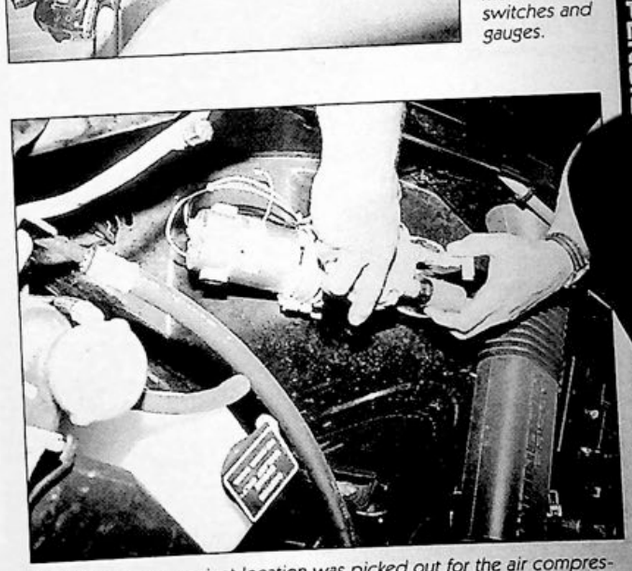
The new shocks are then installed. In the case of this lowered Ram the shocks are shorter. These shocks are valved specially for the air ride system.



The panhard bar was then installed. The bar keeps the rear end from shifting from side-to-side.



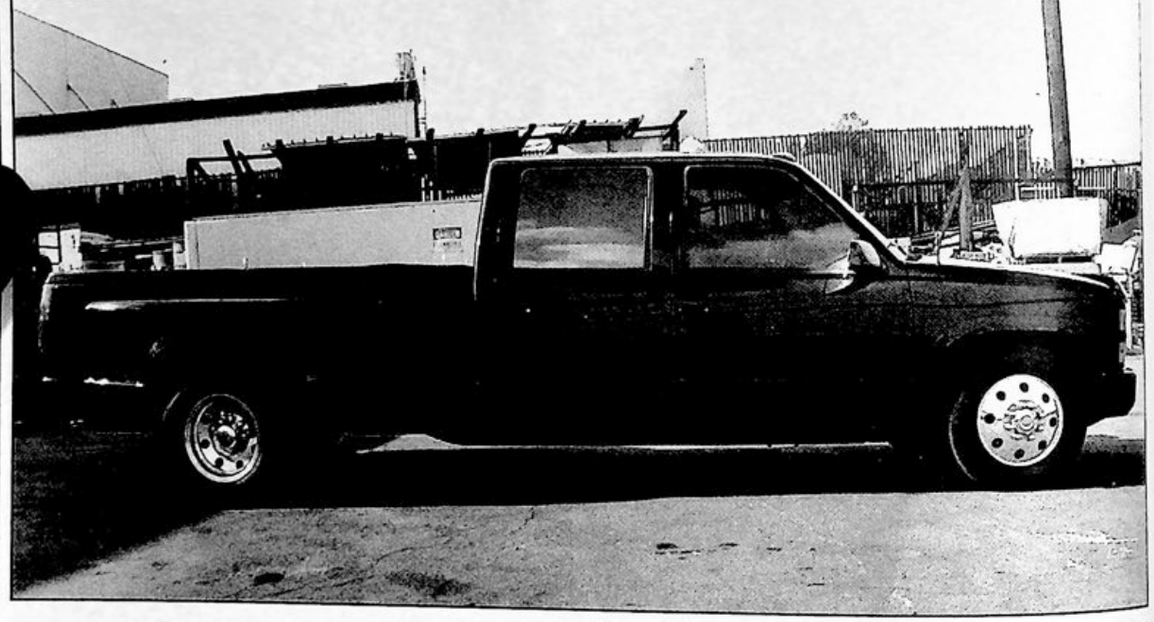
An out of the way, but still convenient location was chosen to mount the switches and gauges.



Then another convenient location was picked out for the air compressor and holding tank.

ULTIMATE SLAM

A look at Chisholm Suspension's lowest slam



This particular dually already had somebody else's dropped arms on the front. In the rear they had pulled out the overloads to bring it down. This killed the load capacity; the owner couldn't even carry a grain of sand without it hitting bottom

BY BILL TURNER

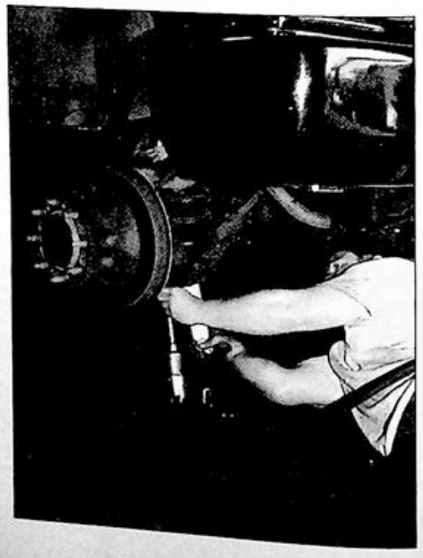
PHOTOGRAPHY: BILL TURNER

There's nothing like the looks of a super slammed four-door dually rollin' down the highway towin' a super tricked-out flat bottom boat. This seems to be the look that everybody is after. Chisholm has received numerous phone calls requesting 5/7 drops for these big trucks.

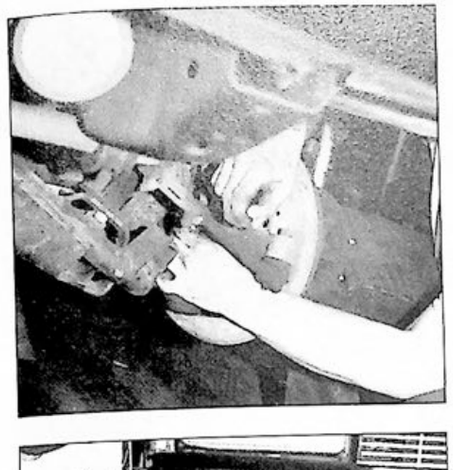
So Chisholm Suspension went to the drawing board and has been working on the correct setup to make this all possible. It's a trick getting these big tuna boats down on the ground so they will still carry a cab-over camper and pull a boat with the entire family in tow.

This is something Chisholm Suspension has been working on for quite some time. They offer a full time air ride system that will do the job and more, but the average family guy often doesn't have the extra bucks to spend.Well, they finally solved the problem. Chisholm now offers the ultimate drop for your one-ton dually. It features a five-inch front drop which consists of a set of new lower arms, springs and shocks. For the rear, seven-inch dropped springs retain all the one-ton overload springs, shorter shocks and C-notch plates.

Follow along as we watch them drop this one-ton dually to the ground.

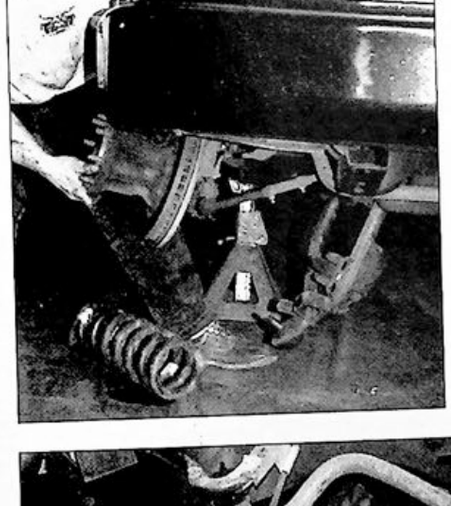


First order of business is to tear down the front suspension and replace the old arms and springs with the new ones from Chisholm. The swaybar and shocks are first removed.

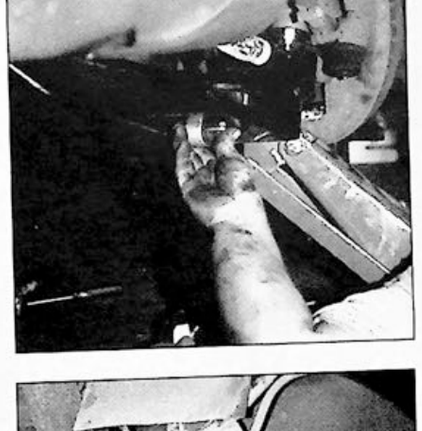


Then the lower ball-joint hardware was loosened up and a coil spring compressor was then used to collapse the springs

The new shorter coils were installed and, using a floor jack, the lower arms were jacked up to meet the spindles The hardware was then reinstalled and tightened up and the cotter keys installed.



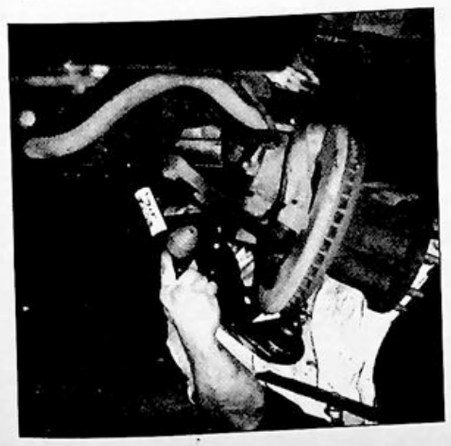
The springs were then removed and the lower arms were freed from the spindles.



Then the new shorter shocks were installed.

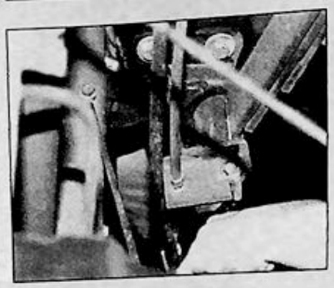
Next the lower arms were removed from the frame of the truck.

New shorter end-link kits were required to bring the swaybar back down to were it belonged,...



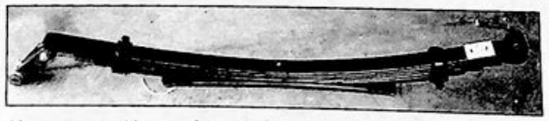
The new lower arms were then installed into their new home.

...and new urethane swaybar bushings were added to help the swaybar do its job better.



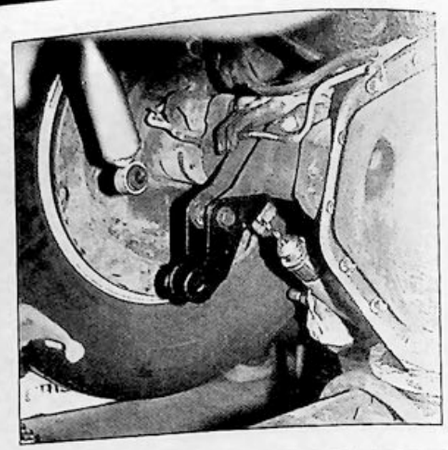
The rear suspension was next. With the rear of the truck jacked up and on jack stands, a floor jack was then placed under the differential. Then the U-bolts were removed that hold the rear end in the springs. The next step was to unbolt the springs at their front and rear hangers.

Caught red-handed! Brad is holding one of the old rear springs that he has just removed.

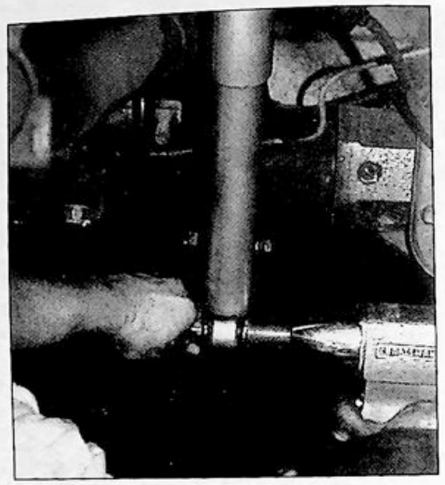


Here we are with one of the new rear springs complete with its overload spring. The new rear springs are designed to carry the same weight as the stock ones.

The new springs are then installed in their new home.

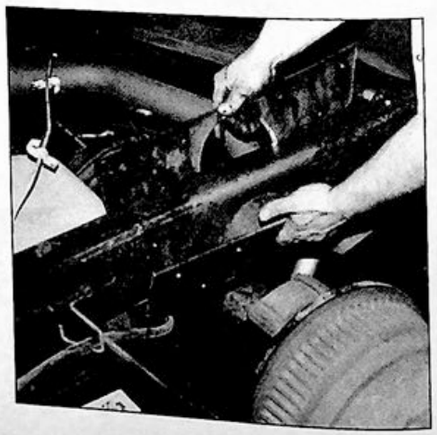


Shock extens are added to original shock mounts to give the new shorter rear shocks the stock working angle.



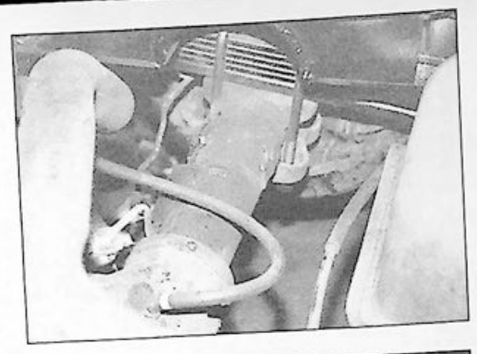
Next the new rear shocks are added and bolted into place.

Now for the C-notches. The bed was removed to make the job of cuttin' and wackin' alot easier. A center line mark was made over the rear end housing. Next a template was put into place and the C-section was cut in the frame.

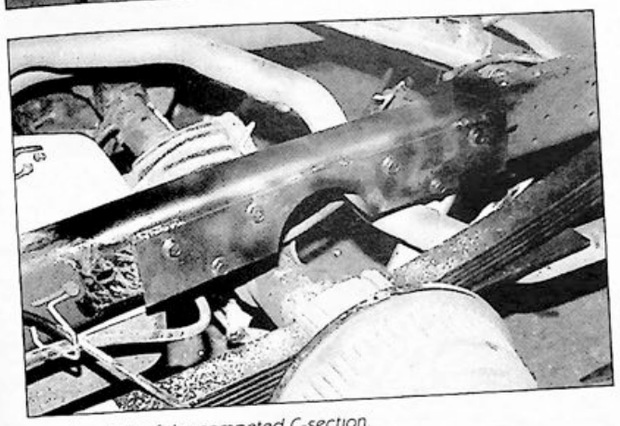


The C-section plates were then installed. The inner plate sandwiches the frame rail for extra strength.

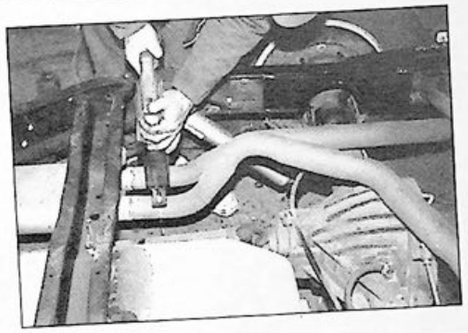
All the bolt holes have been drilled and the grade eight hardware is being installed.



This sure opened up that space! There is now more than enough travel space.

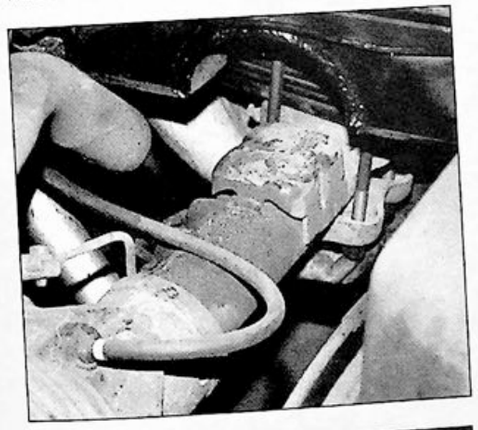


Here's a shot of the competed C-section



The exhaust pipes were in the way, so they had to go

A last final inspection by the crew to make sure it was all right.



The factory bump stop platform has to be removed for extra travel.

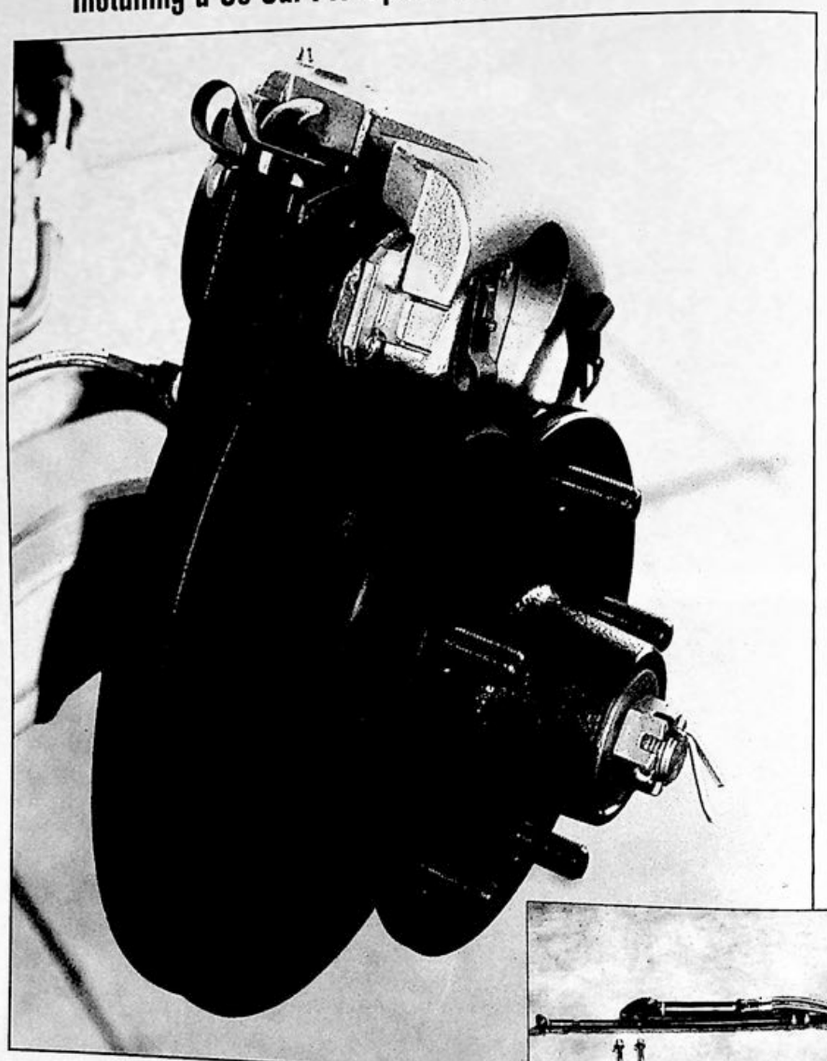
A plasma cutter was used to remove it.

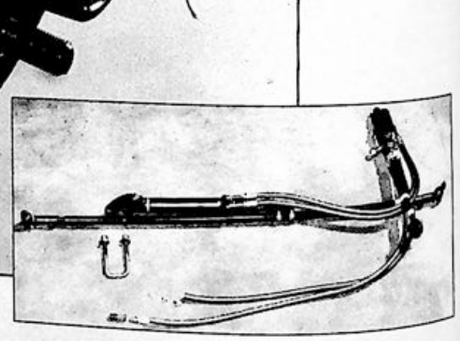
The last step was to install the bed and hardware.

Now that's what a four-door dually should look like! Give the folks at Chisholm a call for further info on this complete kit and others.

PUTTIN' ON THE BINDERS

Installing a So-Cal Pickups F-100 disc brake kit





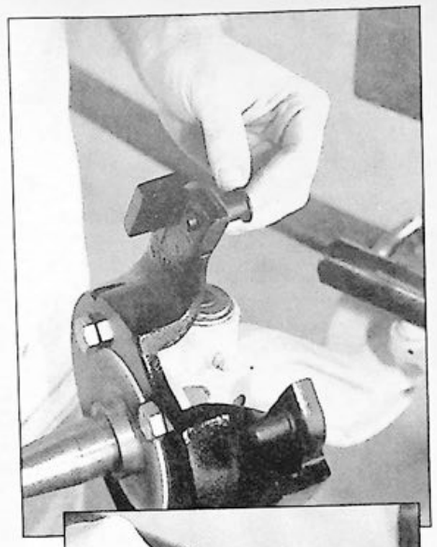
BY JIMMIE O'DELL
PHOTOGRAPHY: JIMMIE O'DELL

If only the Ford Motor Company would have possessed the disc brake technology in the '50s that they do now. In a day when drum brakes ruled, imagine how nice it would have been to have had an F-100 that would stop on a dime! Thirty-some-odd years later, it's finally possible, thanks to the folks at So-Cal Pickups. What they've done, is develop a front disc brake kit that adapts the front rotors and calipers from a Ford Mustang onto an F-100.

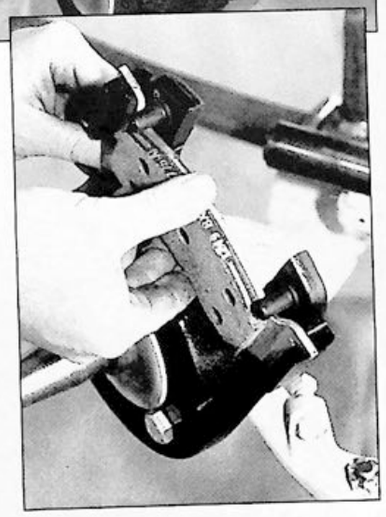
One of the advantages of the So-Cal Pickups kit is that the stock, larger-sized truck wheel bearings are retained instead of utilizing the smaller car bearings. The So-Cal kit also allows owners to retain their stock Ford hubs with the five-and-one-half-inch, five-bolt pattern. Should you desire another hub pattern, have no fear, because by specifying when you place your order, they can supply the kit with virtually any bolt pattern you desire.

Whether you obtain the rotors and calipers yourself from a salvage yard, or order them directly from So-Cal, their front disc brake kit includes virtually everything you need. So-Cal even has optional stainless steel braided brake lines available, too. Without a doubt, the So-Cal disc brake kit is a must-have item for all you F-100 owners out there tired of rolling through too many stop lights!

Before beginning the installation, it's necessary to remove the wheel, brake drum, hub and stock brake line. Remove the four nuts and bolts at the rear of the brake backing plate and remove the backing plate from the spindle.



Insert the two rubber bolt bushings through the holes in the caliper mounting bracket

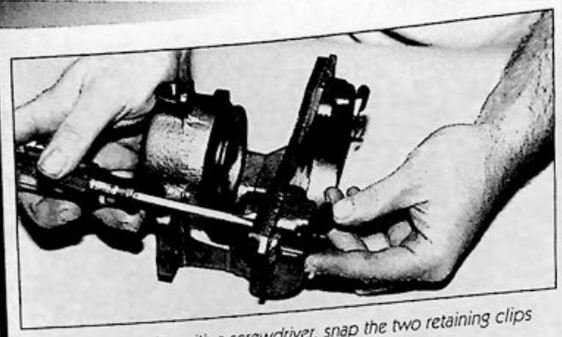


Slip the inner brake pad onto the caliper mounting bracket.

Install the caliper mounting bracket over the stock spindle

Install the four bolts and nylock nuts provided with the kit. Tighten nuts evenly with a 3/4-inch wrench and socket. Make sure the heads of the bolts don't rotate and ride up onto the edge of the spindle. This could cause the bolt to cock and not seat properly.

Install the outer pad into the caliper and slide the two pivot pins into the holes.

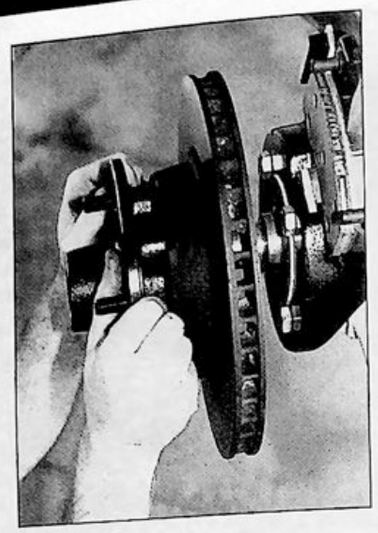


Backing up the pins with a screwdriver, snap the two retaining clips onto pad pins.

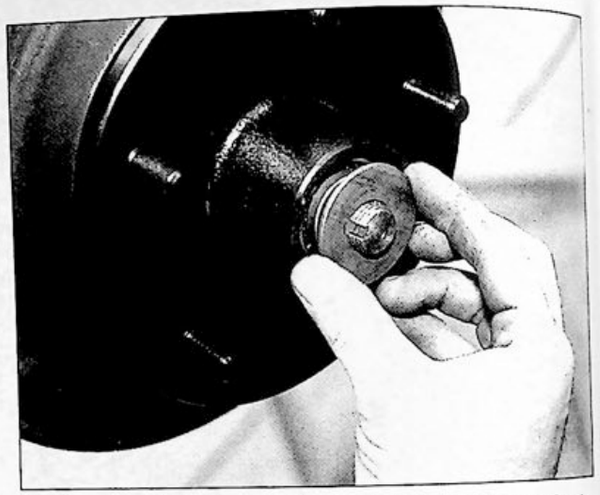
Install the disc brake rotor to hub, lining up bolt holes. Insert all five bolts, thread on the nylock nuts and tighten with 3/4-inch socket.

Pack both the inner and outer bearings with grease.

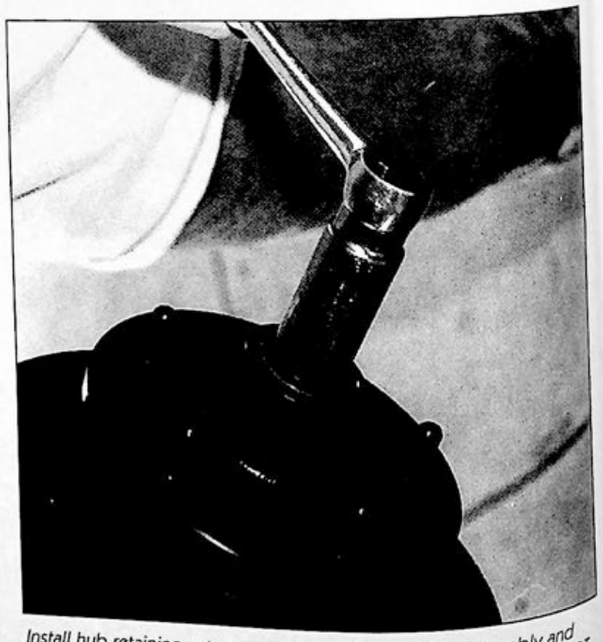
Install inner bearing into hub. Lightly tap inner bearing grease seal into the hub.



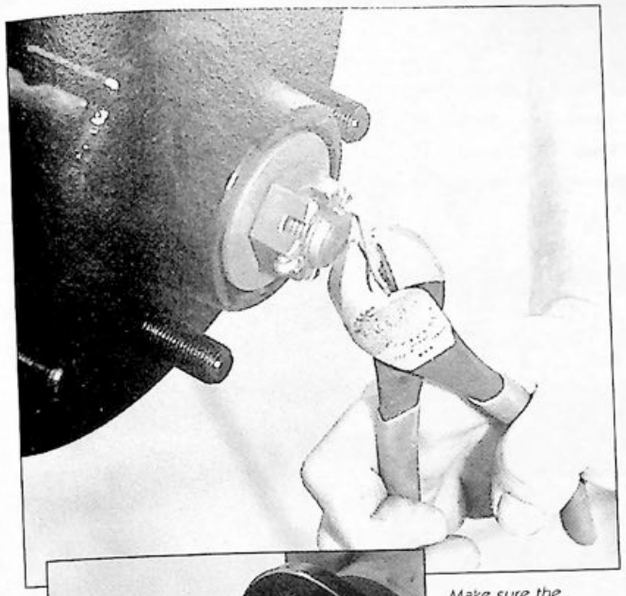
Slip assembled rotor/hub assembly onto spindle

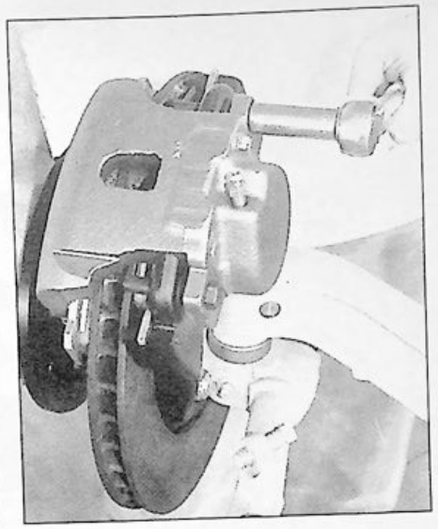


Install grease-packed outer wheel bearing and slip the bearing thrust washer over end of spindle.

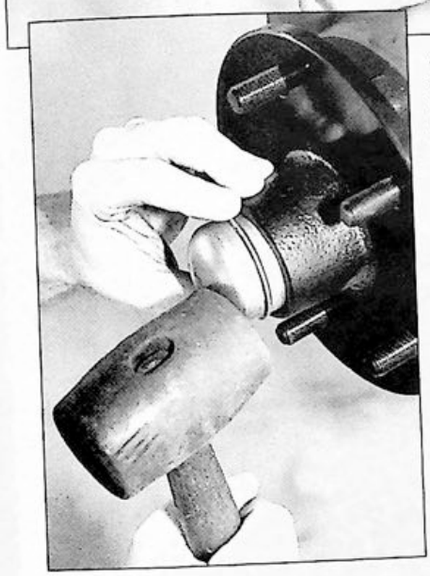


Install hub retaining nut onto spindle, spin rotor/hub assembly and tighten until a slight amount of drag is felt on spinning rotor. DO NOT OVERTIGHTEN!





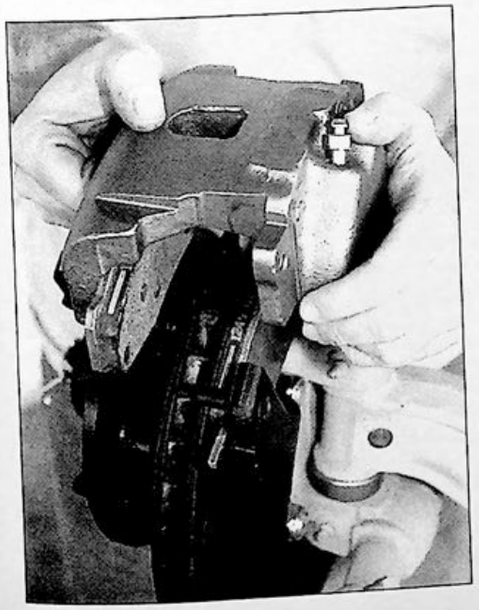
Slide both hardened caliper bolts into place, making sure not to cross-thread them, and tighten with a 9/16-inch socket.



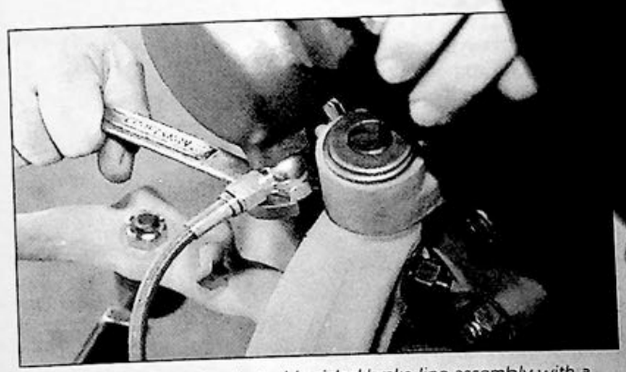
Make sure the groove in the spindle and nut is lined up, slip in the cotter key and bend over ends.

Install the axle bearing dust cap by lightly tapping the outer edges with a rubber mallet, making sure not to dent the cap

Install both anti-rattle pad retaining clips onto caliper mount and inner brake pads, tighten with a 7/16-inch wrench.



Slip assembled caliper unit into place over rotor and line up the holes.



Install and tighten optional steel-braided brake line assembly with a 5/8-inch wrench. Repeat entire So-Cal disc brake installation on opposite side. Fill system with DOT-3 brake fluid and bleed brakes.

CLASSIC SLAM

A look at the complete lowering package for your '73-87 half-ton Chevy or GMC

Check out the low stance of Chisholm's test mule. The Wheel Vintiques wheels really help with the look of this truck. The General tires also help add a bold aggressive look.

BY BILL TURNER
PHOTOGRAPHY: BILL TURNER

I have always been partial to the look of the '73-87 GM trucks. I'm not much for the stepsides, but would take one if it was the right price. On the other hand, there's nothing quite the equal of a slammed fleetside.

My friend's dad purchased one of these brand new, and he got the full boat — it was loaded. It was Arctic White with a gold interior. The first thing he did was lower it and add a set of Tru-Spoke wire wheels shod with BFGoodrich tires. Then he had it pinstriped in gold and added a chromed tube grille. That was the look back when I was a kid. At the time it was the coolest truck in town. Back when this truck was hip there was nothing available to correctly lower these trucks. Well, all that has changed.

Nowadays you can lower anything that has four wheels. There are so many different companies offering kits for the same vehicle that it gets confusing. Here's your chance to check out what Chisholm suspension has to offer. We used one of Chisholm's mule trucks to show you their complete kit for the '73-87 GM half-ton.

We also took this opportunity to introduce you to Wheel Vintiques' new 16-inch reproduction of the early GM Rallye wheels. These have always been popular, but as the years go by they are getting harder to find, so Wheel Vintiques has brought them back. They're available in just about any offset and size. Call them for a catalog — you'll be surprised at the wide selection of wheels and accessories they offer.

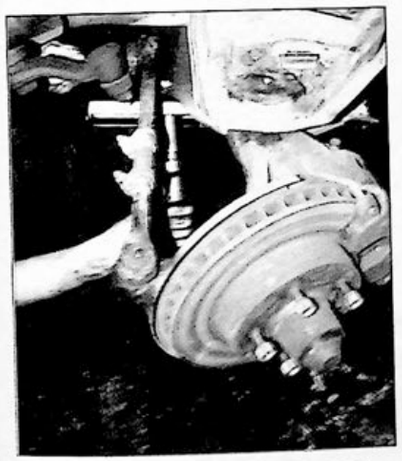
Follow along with us as we watch the guys at Chisholm lower their test mule truck.

Brad starts by removing the cotter keys and loosening the ball joint hardware.

Using a large hammer, he breaks the ball joints loose. Do not take the nuts off the ball joints when performing this task, just loosen them up a bit. If you remove the nuts completely and one of the ball joints comes loose, you could get hit with a spring.

Next, he removes the two front shocks

Using a spring compressor, Brad collapsed the front springs, dropped the arms down out of the way, and removed the springs.



He then bolted on the tray that holds the new dropped lower arms to the front crossmember.

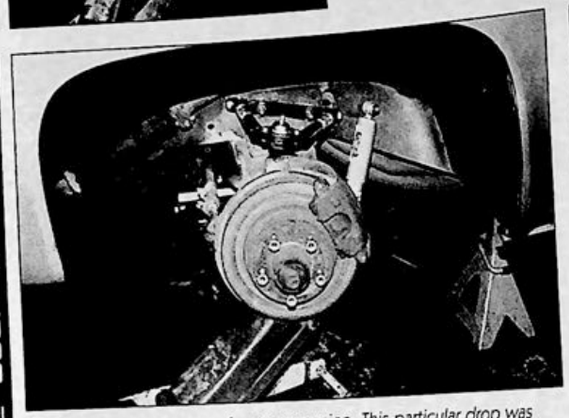
Then the new lower control arms were installed using hardware supplied in the kit.

Brad then installs the new shorter coil springs. Using a floor jack, he moves the lower control arms up to install the ball joint posts into the spindles. Then he installed all the hardware, tightened it up, and installed new cotter keys.

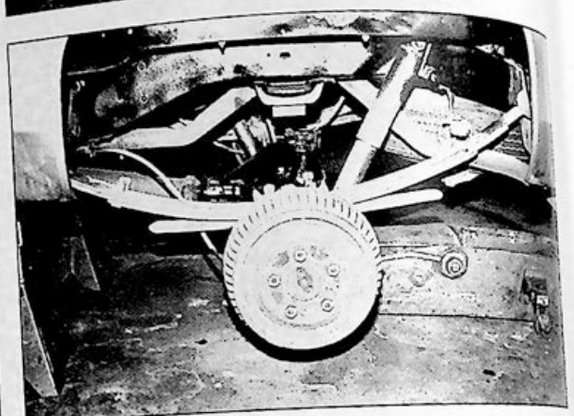
Shorter shocks were included with the new front suspension package.

Next Brad removes the upper control arms. They will be replaced with new longer arms so that the front suspension can be properly aligned. These arms work great with spindles as well. Call them for more info.

The new arms are then installed.

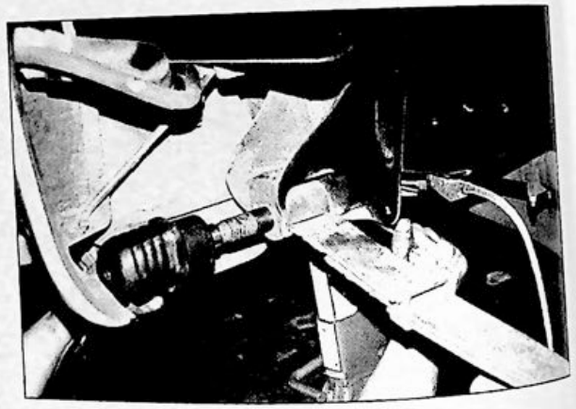


Here's a look at the new front suspension. This particular drop was four inches, but they have different drops available for these trucks.



Now for the rear suspension. In the rear we are going with a six-inch drop.

With a floor jack under the rear end housing, Brad removes the U-bolts that clamp the rear end to the springs.



The front mounting bolts were removed.

Brad then removed the rear shackle hardware.

Then the springs were removed. Next Brad removed the rear shackles

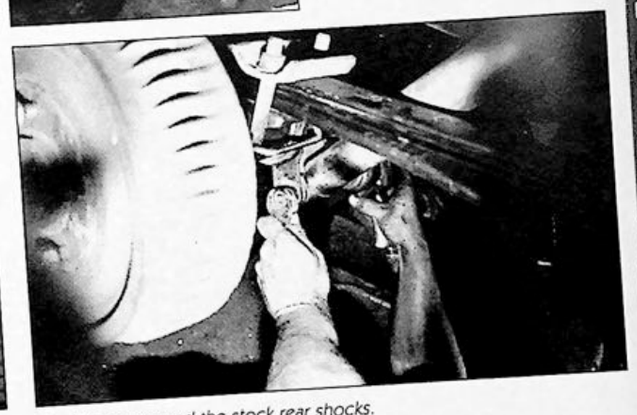
Brad then installed the stock shackles on the new springs.

Both new springs were then installed and all the hardware tightened up.

Next Brad removed the bump stops to make way for a shorter set

The shorter bump stops allow more travel which you will need with the flatter rear springs.

Then the stock U-bolts were installed and tightened up.



Brad then removed the stock rear shocks.

This bracket allows an extra shock to be installed. The extra shock is valved opposite of the other, helping to control body roll.

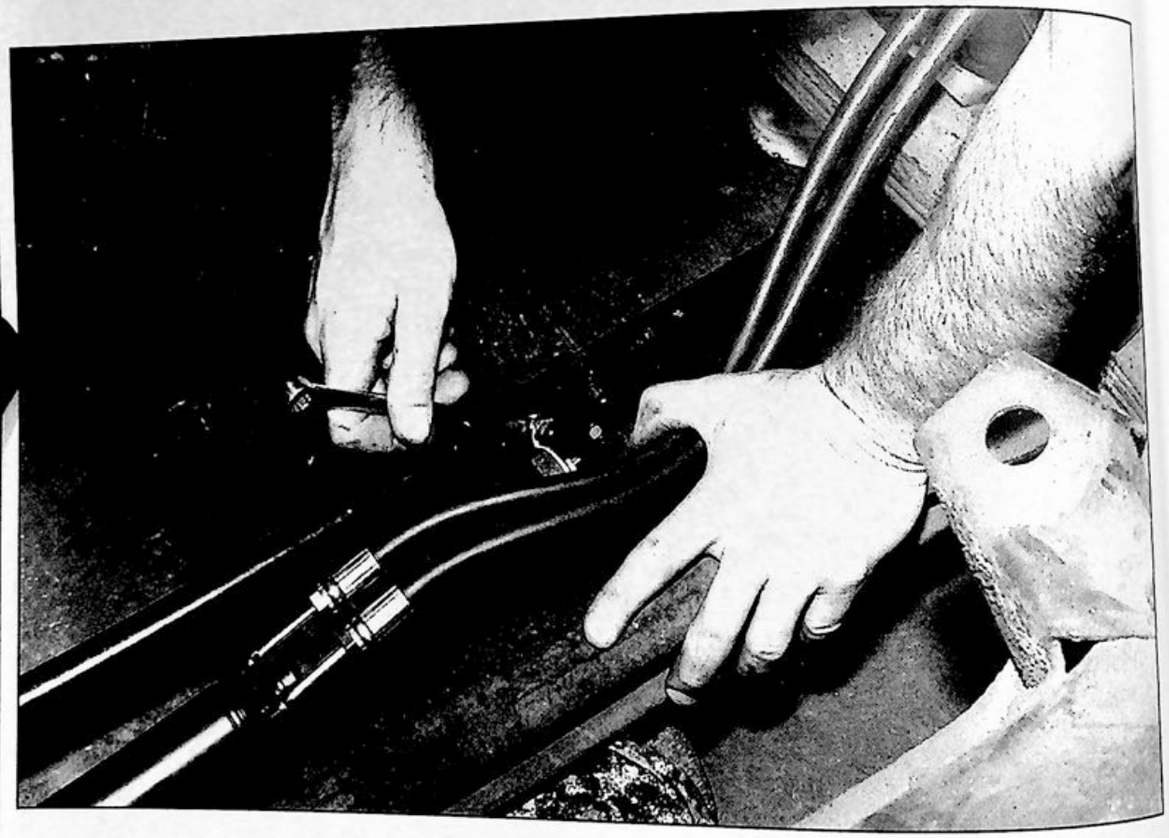
An extra stud was added to the frame rail to hold the extra shock.

In this close-up shot you can see how the new shocks fit together on the new bracket.

This is a shot of the new Wheel Vintiques wheel, shod with General tires. The new 16-inch Rallye wheels are already becoming popular. They make many different style steel wheels and can also supply you with caps and rings of different styles. Call Wheel Vintiques for their current catalog.

POWER PILOTING FOR OLD CHEVYS

Give your 1947-59 Chevy or GMC truck the luxury of power steering



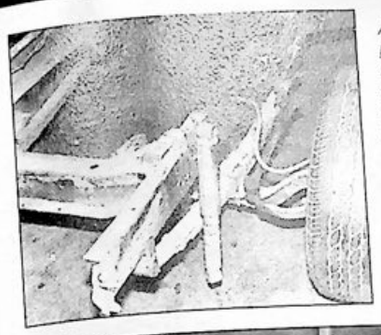
BY BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK

When it comes to upgrading a classic Chevy truck, the options seem endless these days as aftermarket and restoration manufacturers continue to provide trick enhancement products. Both Classic Performance Products and Golden State Pickup Parts have become recognized leaders in the classic truck segments of customizing and restoration, with innovations catering to a variety of applications, all determined by the consumer's desires.

Installation of power steering has become a major segment of classic truck upgrading, and both Golden State and Classic Performance Products offer a wide variety of options, depending on the application. One of the hottest new offerings from these industry leaders is a power steering kit that adapts to the original straight axle design found on the 1947-59 Chevy trucks.

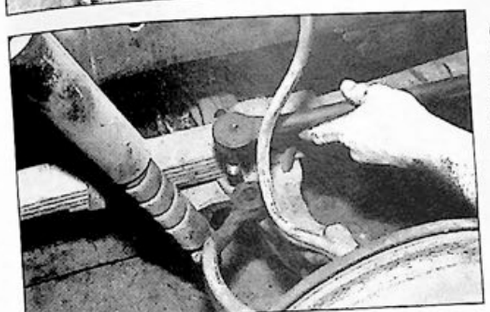
The power steering kit provides the flexibility of retaining your stock steering column and gear box, as well as the original suspension and brake assemblies. In this kit, you will find a new drag link and tie rod ends, control valve assembly and required hoses and compression fittings with the owner needing only to acquire a power steering pump that works with whatever engine your truck may have.

In a nutshell, this new power steering kit offers a lot to the restoration enthusiast or mild customizer who chooses to retain the factory chassis and suspension design, but would like the convenience of easier steering. It's simple to install and requires no major modifications to your stock equipment.

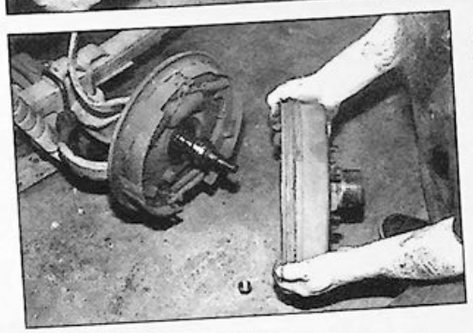


Although very basic compared to today's suspension chassis designs, the stock 1947-59 Chevy front suspension and steering assembly remains a must for resto fans. That's where this bolt-on power steering kit comes in. To better show you the installation procedures, we are using a bare chassis with the engine removed.

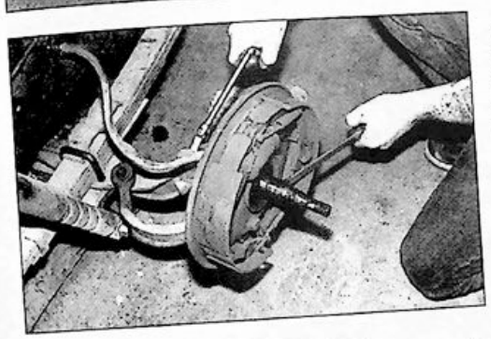
After properly jacking up the truck and supporting it with sturdy stands, the first step is to remove the stock tie rods



Next, remove the stock drag link that attaches to the steering and pitman arms.

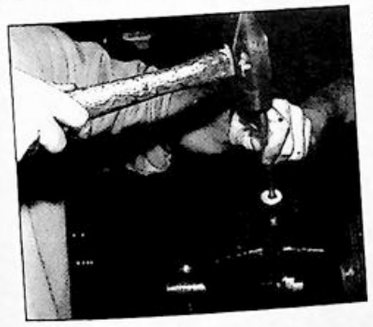


You then must remove the brake drums which allows access to the steering arm bolts. Now, remove the bolts and the steering arms.

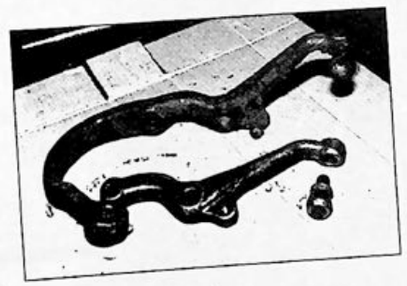


The stock ball ends must be removed to continue the installation

Using a belt sander, remove the pressed edge to the point where you can slightly notice the outer circumference of the ball end.



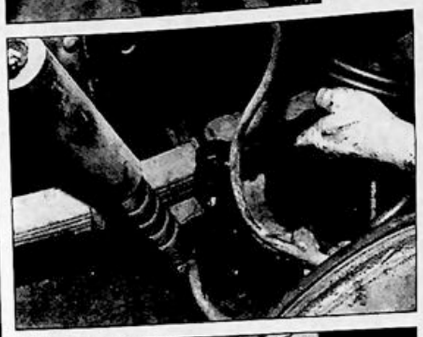
Use a center punch and hammer to knock out the ball end. You may have to drill it out if it doesn't want to cooperate. When complete, re-install the steering arms back onto the backing plates of the truck.



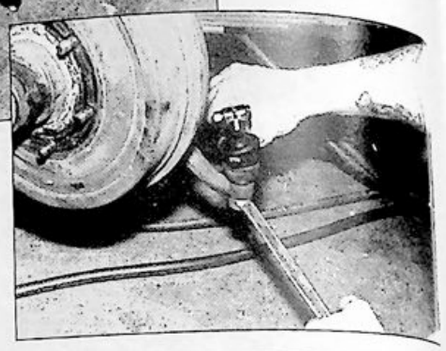
Now you can slide the complete power steering setup from Golden State and Classic Performance Products under the truck, behind the axle.

Attach the power cylinder bracket to the axle using the supplied U-bolts and tighten.

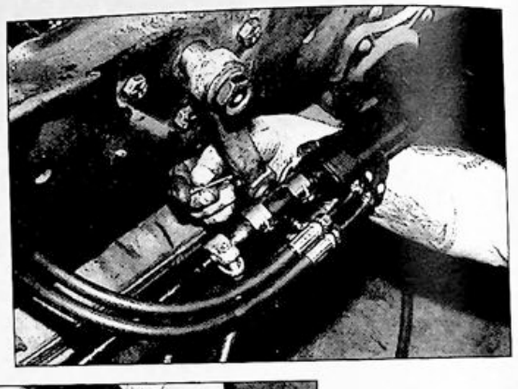
After the bracket has been tightened, install a cotter pin into the power cylinder attachment bolt.



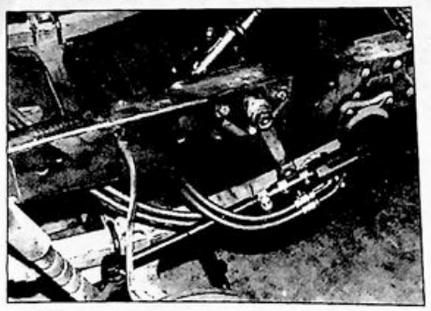
The new drag link extending from the control valve is then installed onto the steering arm in the same manner as the stock drag link. Once again, be sure to install the cotter pins.



Install each of the new OEM upgrade one-inch rod ends onto the top o the steering arms that yo removed the ball ends from. Cotter pins are to installed here too



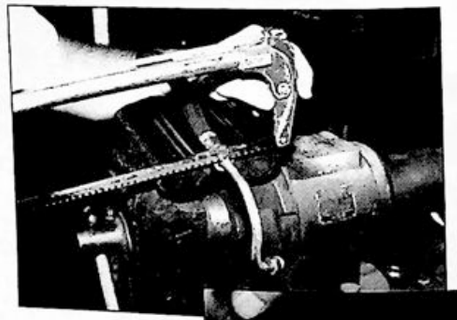
The new control valve simply installs right onto the stock pitman arm in the same fashion as the tie rod ends and drag link.



When the control valve has been installed, this is what the assembly should look like.

Since this truck doesn't have an engine, we are going to dummy where the pump will probably be mounted so that the hoses will be of proper length.

The choice of power steering pump will be determined by what engine your truck has. In this case, we are using a pump for a small block Chevy which is common with customizers. A quick trip to the parts yard will surely yield the pump you need. It is important that you get the hoses with the pump to continue the installation.



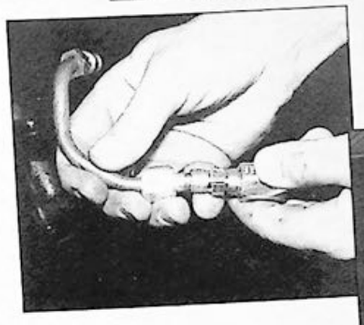
Remove the pressure hose and fitting from the pump. Using a hacksaw, cut the steel line just before the rubber hose.

The kit includes the compression fittings you will need to properly assemble the new power steering lines that extend from the control valve assembly.

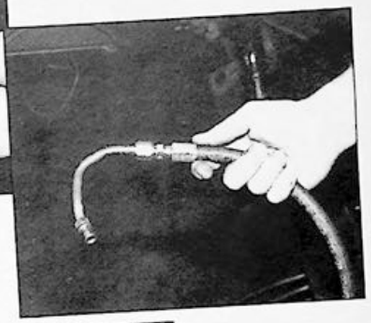
Cut the pressure hose to the required length and screw on the threaded nut (left hand threads)

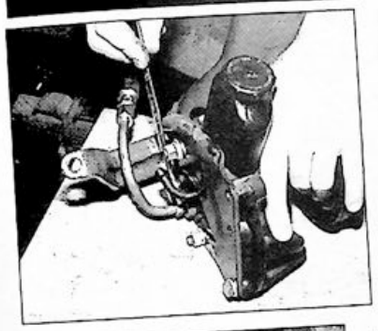
The re-usable fitting and nipple are then installed into the nut.

Now slide the provided nut and ferrule onto the end that you cut.



Connect the re-usable fitting and the hard line with the ferrule and nut together and tighten.



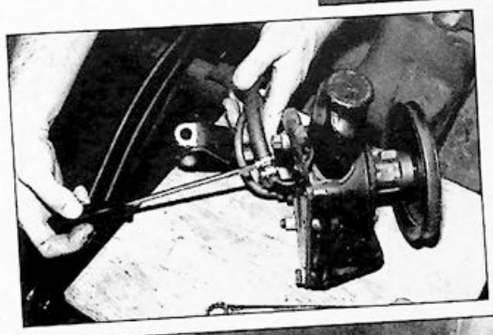


The pressure line can now be installed onto the pump and tightened

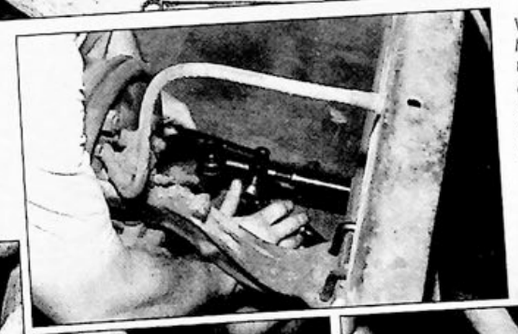
To adjust and check toe-in, loosen the cylinder clamp on the tie rod, as well as the end adjusters, and measure both the front side and rear side, drum to drum as shown. Set the toe-in at 3/32-inch and a minimum of 1-1/2-inches of caster for good steering return

With the cylinder clamp still loose, keep the wheels pointing straight and extend the cylinder ram fully. Mark this point on the tie rod at the inside point of the clamp.

Now, fully retract the ram and mark the position on the tie rod from the same inside point of the clamp.



The same goes for the return hose which is secured using hose clamps.

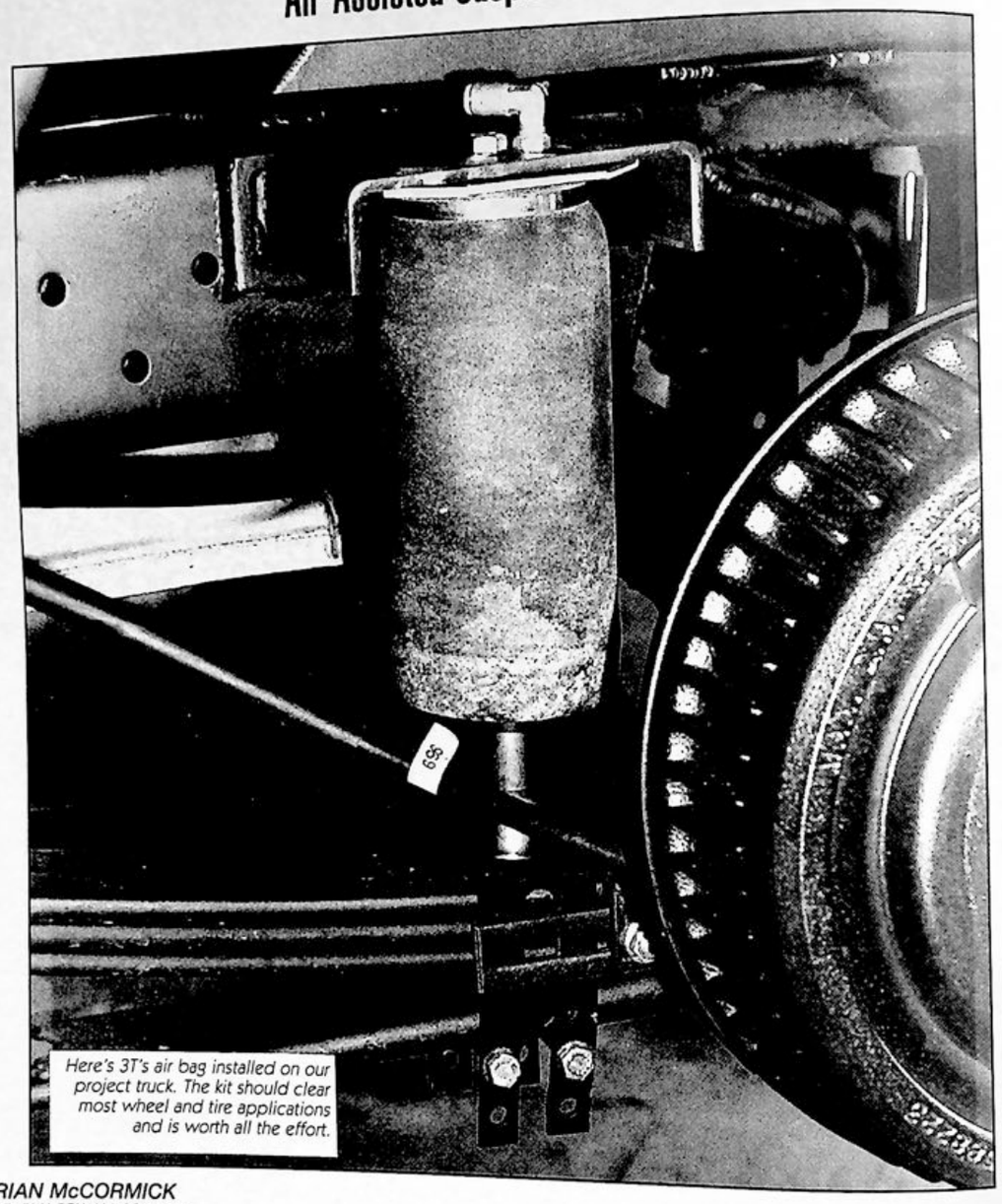


When you have gotten the alignment right, tighten the tie rod end adjusters.

Measure between the two marks, which is seven inches as shown. Find the center point of the distance, which in this case, measures 3-1/2-inches and mark.

PUMP IT UP

The Ultimate Drop wouldn't be complete without an adjustable Air-Assisted Suspension



Here's 3T's air bag installed on our project truck. The kit should clear most wheel and tire applications and is worth all the effort.

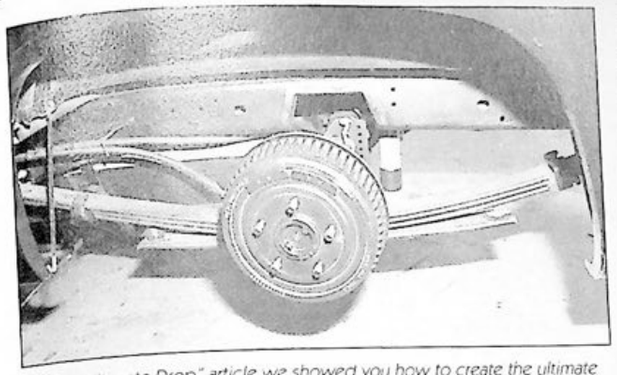
BY BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK

After learning about how to build a trick, high-tech, almost completely bolt-on suspension that really sits this extended cab low, it has nearly become a standard to install air bags to assist payload on lowered trucks.

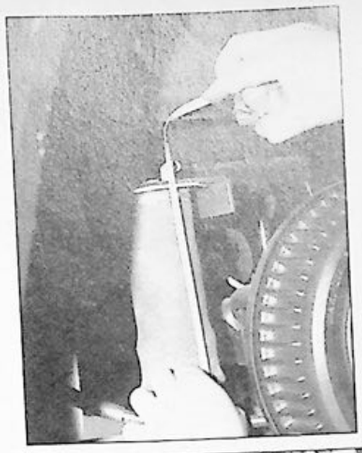
Precision Alignment has found all the tricks to installing 3T's air bags and making them work properly to control ride height, weight control and overall ride under any circumstances. The 3T's air bag comes with a strong rubber air bladder made by Firestone and two steel brackets, one to mount the bag to the leaf spring pack and the other to attach the assembly to the outside of the frame.

It is a quick and easy installation that will prove to be worth the effort. In this installation we simply T'ed the air hoses together at an air valve insert, but you can also upgrade to an onboard compressor, air tank, dump valves, pressure gauges and indicators later on down the road.

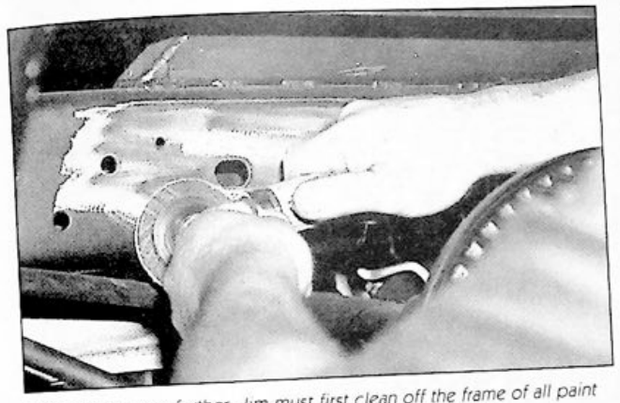
Air bags are for you and your lowered Chevy truck so follow along as Precision Alignment shows us how to do it.



In "The Ultimate Drop" article we showed you how to create the ultimate rear suspension. Now we will show you how to control the suspension with 3T's air bags to raise and lower the truck for a variety of applications.

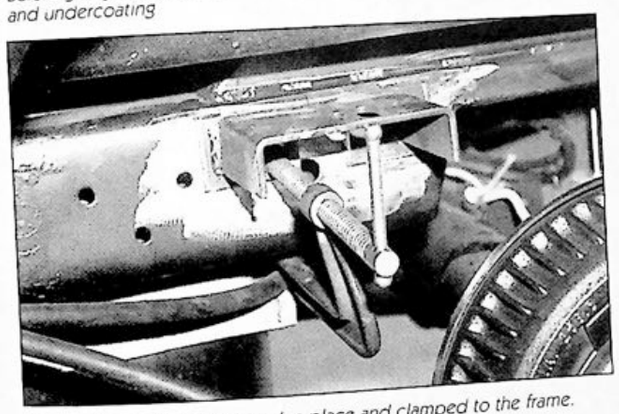


First Jim puts the air bag assembly in place to determine the location of the top mount on the frame. The mount should be flush at the top of the frame.

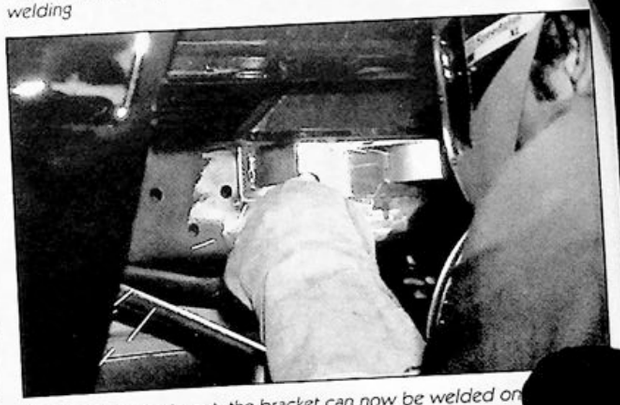


Before going any further, Jim must first clean off the frame of all paint and undercoating

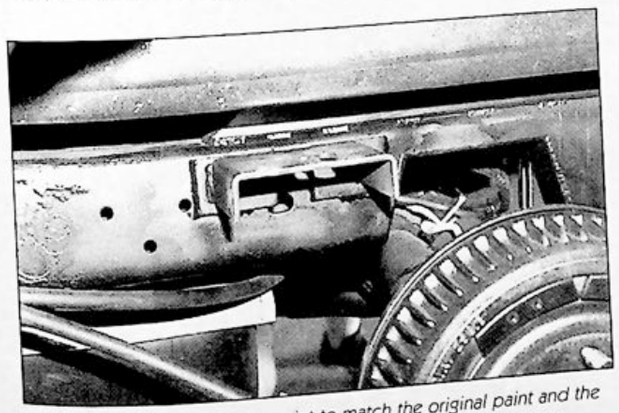
The brackets come painted and must be cleaned to bare metal before welding



The bracket is then positioned in place and clamped to the frame.

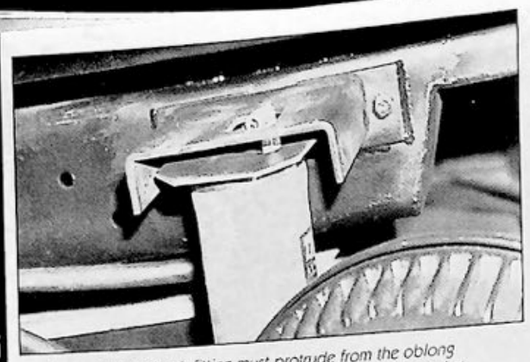


If everything checks out, the bracket can now be welded on frame.

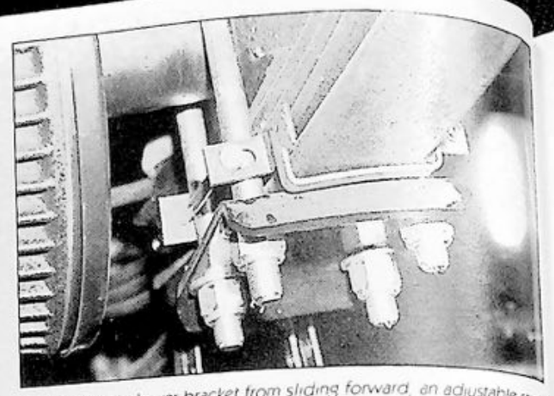


Hit the area with a little satin paint to match the original paint and the bracket blends right in.

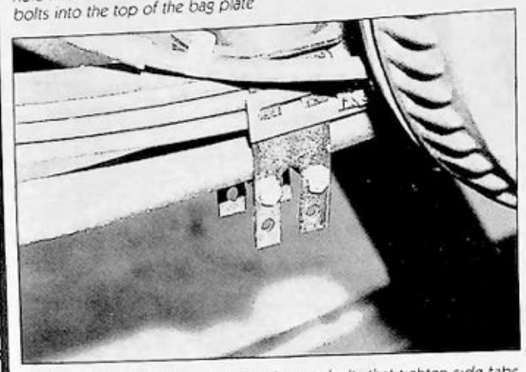
The bag and lower bracket can now be installed.



The brass 90-degree air fitting must protrude from the oblong hole in the bracket. The other hole is for the mounting bolt that bolts into the top of the bag plate



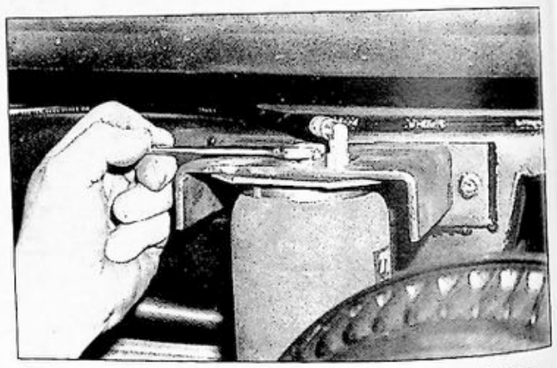
To prevent the lower bracket from sliding forward, an adjustable strac bracket is installed behind the U-bolts.



The bottom bracket is held in place by two bolts that tighten side tabs around the leaf springs.

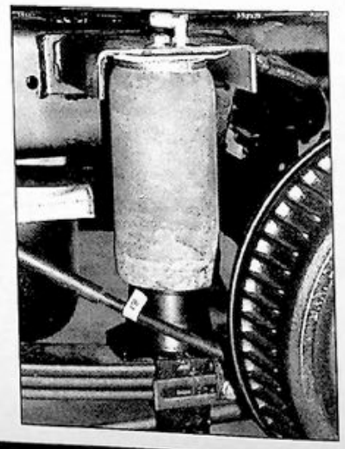
Now we cut the provided air hose and insert it into the air bag fitting

By drilling a small hole into the top of the gas filler location, an air valve or two can be installed in a concealed place



Recheck all of the brackets and mounting bolts before you finish to make sure the job is complete.

All you have to do is add a little air and you are ready to go.



Here's what the final product should look like.

The Chisholm Team

Chisholm Enterprises is not just a place where employees come to put in their eight hours each day and then leave

Chisholm is a hands on company where everyone employed is getting paid to do something that motor sports enthusiasts dream of having the opportunity to do. We are a team of people very much in tune with the happenings of today's Automotive After Market Suspension and Pro Street business.

Chisholm Enterprises' secret for success is good old fashioned hard work 6-7 days a week. The entire works to let the public know about our product whether it be on the phones answering questions from customers or combining efforts to make our information available at motor sport, auto and truck shows.

Three teams make up the combined efforts to bring service and quality to the Chisholm Enterprises Products.

Team #1 is the largest team in the business consisting of 8 members of the Usrey family. Most of them average about 6 foot tall and 300 lbs. so when you call and can't get in touch with a Usrey, that means the lunch truck is here and they're out for a re-charge. Lee & Donna head up and manage the team. They more than earned their status in the company by being Mom & Dad.

Oldest son, Steve, is the company Sales Manager and has to drive the Chisholm race vehicles. It's a tough job, but somebody has to do it! (And Steve makes sure nobody else tries!)

Next son, Ron, manages our 24,000 sq. ft stripping and powder coating shop where every thing we manufacture receives a high quality finish.

Dennis, service manager, makes sure that all installation, welding and fabrication of the components are done correctly. He's also in charge of organizing all company fishing trips and certifying the beer at the river to be cold enough to drink on hot days off.

Craig is in charge of the Shipping Department to make sure all your Chisholm Products get to you as quickly as possible.

Brad is our #1 mechanic and installer and helps his brother Dennis run the shop, and his brother Steve keep the race vehicles running smooth.

Watching out for the boys in the shop and pitching in with the mechanic duties is there Uncle Gary.

Team #2 is our Engineering department. Chadick & Chadick, a father and son team with 50 years of experience in suspension products, is the reason Chisholm is #1 in design and quality of after market suspension products. They have combined both old and proven methods with new innovative technology to produce our top quality line. Working directly with them are Sal & Alejandro, two of the best spring mechanics in the business today.

Team #3 is the newest to join the Chisholm family. Father & Daughter, Gary and Sherry Bradshaw moved to California from Texas to join their friend Lee in promoting these great Chisholm products. Gary has taken over the graphics department and promotion while at inside sales. Sherry¨ı¹O¸˝@Ó the first person you will reach when contacting Chisholm. She is our receptionist and bookkeeper.

The final member of the Chisholm Teams is our own "J.B." Jim Bonner our purchasing agent. While keeping all the teams well supplied with the material and equipment they need, he also lends support and great personality to our inside sales.

From all the members of the entire Chisholm, Team, we want to tell how much we appreciate the opportunity to serve you with all the suspension products that Chisholm manufactures for your vehicles, from custom street rods to your family motor homes. We want to extend an invitation to you to come by and see us any time. We'd be pleased to show you around and answer your questions about our products.

Sincerely,
Steve L. Usrey
Team Chisholm

1996 Chisholm Enterprises Catalog

TELEPHONE ORDERS

Telephone orders are welcome. Please have the following information ready: Your complete shipping address and or your mailing address, a good description of wanted parts, year, model, manufacturer and engine size of vehicle. Your Master Card, VISA, Discover or American Express credit card with expiration date are required on all phone orders.

MAIL ORDERS

An order form can be found in the rear of this publication. Be sure to provide Chisholm Enterprises with as much information as possible when ordering by mail so we can insure sending you the proper parts. Since we are constantly adding new items to our inventory, some items not found in this catalog will appear on a supplement. Supplements can be obtained by telephone request or may be inserted in this catalog.

SHIPPING

Most items are shipped via UNITED PARCEL SERVICE. Charges are determined by weight and zone. All items shipped are to be prepaid, NO C.O.D.'s. Items can be shipped BLUE or RED LABEL at customers request and expense.
Hawaii orders must be sent BLUE LABEL.
Alaska and Canadian orders are normally shipped UPS.

RETURNS

All returns must be preceded by a RETURN AUTHORIZATION NUMBER. No returns on merchandise purchased 30 days prior to current date unless authorized by Chisholm Enterprises.

All returned items are subject to a 25% restocking fee.

PAYMENT

Personal checks are welcome. Please allow and expect 10 banking days for your check to clear. Certified funds, Credit Cards, Money Orders are the fastest way for you to receive your merchandise. Please do not send cash by mail.

CUSTOM WORK

All custom work prices will be determined at the time of order and a deposit of 50% has to be at Chisholm Enterprises before any project can be started. The remaining 50% balance has to be paid before the items will be shipped. All custom work has to be picked up or shipped within 30 days of completion or deposit will be forfeited and custom work will be put into inventory unless prior arrangements have been made.

TELEPHONE NUMBERS

ORDERS ONLY ----------800-848-2333
TECH LINE ----------310-946-3183
FAX LINE ----------310-946-8039

MAILING ADDRESS

CHISHOLM ENTERPRISES
10051 GREENLEAF AVENUE
SANTA FE SPRINGS, CALIFORNIA 90670

PRICES

All prices are subject to change without notice. Purchaser will be notified before shipping in case price changes are extreme.

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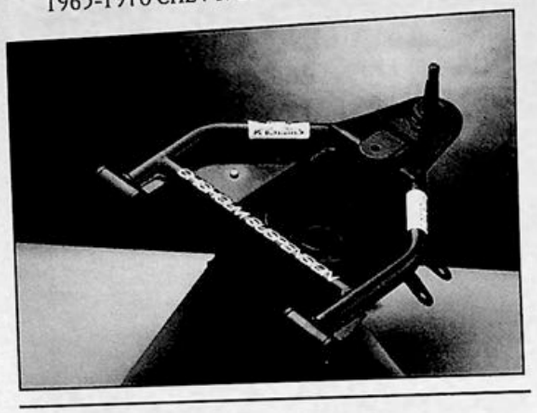
"All prices subject to change

*Authorized Chisholm

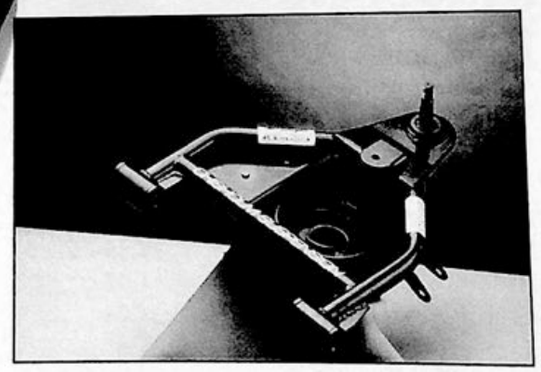
CHISHOLM LOWERED CONTROL ARMS

"33" + 4" Drops must Have Dropped Springs"

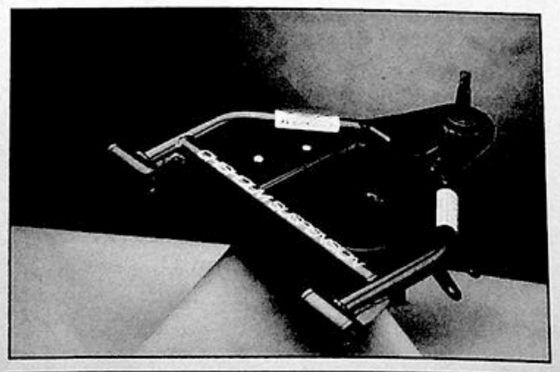
2" LOWERED CONTROL ARM
CHLC6370
1963-1970 CHEVY/GMC 1/2 TON $329.95



2" LOWERED CONTROL ARM
CHLC7172
1971-1972 CHEVY/GMC 1/2 TON $329.95



2" LOWERED CONTROL ARM
CHLC7387
1973-1987 CHEVY/GMC 1/2 TON $329.95



Chisholm Enterprises manufactures the finest lowered control arm on the market today. Our engineers are into there 5th generation of control arms with improvements every time. Our control arms require no modifications and simply bolt in replacing the stock arm. Easy alignment, installation and quality while maintaining factory geometry are among the reasons you should use Chisholm Control Arms.

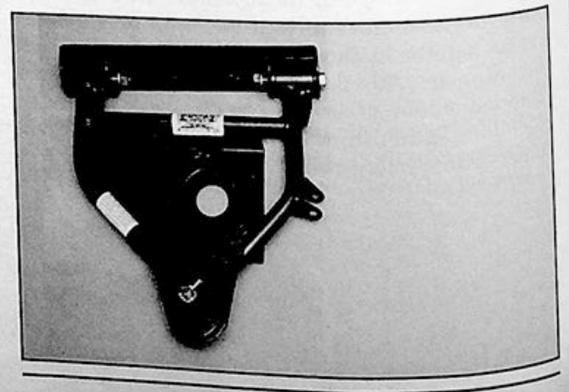
All Chisholm control arms come complete with Polyurethane greaseable bushings and ball joints except "Dodge". All control arms are powder coated satan black unless otherwise requested by the customer.

We presently have lowered control arms for the following vehicles:

Chevrolet Trucks --- 1963-1996
Chevrolet, S-10 & S-15 --- 1982-1996
Dodge Trucks --- 1972-1996
Dodge Dakota --- 1986-1996
Toyota --- 1984-1996
Camaro --- 1982-1993
El Camino --- 1978-1988
Monte Carlo --- 1978-1988
Malibu --- 1978-1988
Buick, Grand National --- 1984-1987
Buick, Regal --- 1978-1987
Chevrolet, Impala --- 1958-1964
Ford Trucks --- 1997

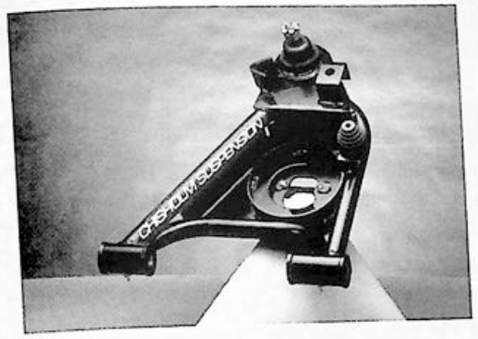
"COME RIDE THE CHISHOLM BULL"

2" LOWERED CONTROL ARM
CHLC7387T
1973-1987 CHEVY/GMC 1 TON $349.95

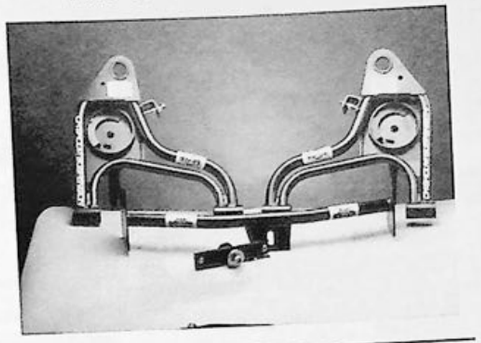


CHISHOLM LOWERED CONTROL ARMS

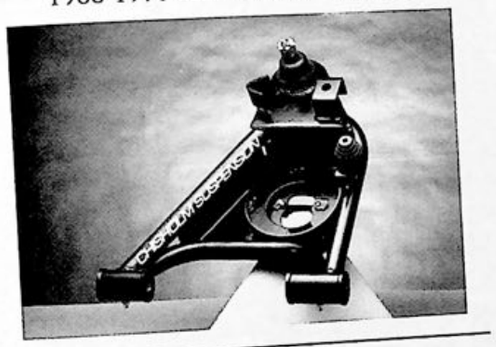
LOWERED CONTROL ARM
CHLC041 --- 2" DROP
1988-1996 CHEVY/GMC $286.86



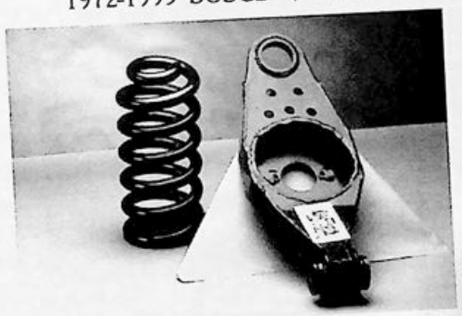
LOWERED CONTROL ARM
CHLC073 --- 2" DROP
1994-1996 DODGE $595.95



LOWERED CONTROL ARM
CHLC091 --- 2" DROP
1988-1996 CHEVY/GMC $286.86

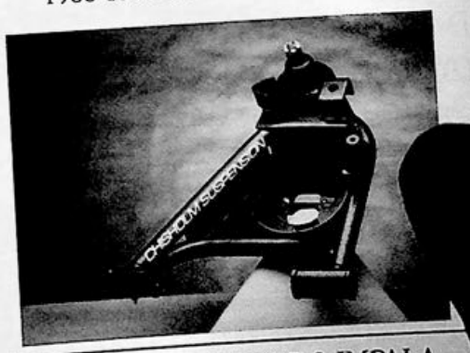


LOWERED CONTROL ARM
CHLC071 --- 2" DROP
1972-1993 DODGE $244.95



LOWERED CONTROL ARM
CHLC031 --- 2" DROP
1982-1996 CHEVY/GMC $244.95

LOWERED CONTROL ARM
CHLC051 --- 3" DROP
1988-1996 CHEV/GMC $286.86



TUBULAR CONTROL ARMS FOR CHEVROLET CAMARO, CHEVELLE & IMPALA

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IMPALA 1958 - 64 ---------- $389.95

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(Includes Ball Joints, Polyurethane Greaseable Bushings, & Powder Coated)

1996 - CHISHOLM ENTERPRISES - 1996

ALSO AVAILABLE:

2 1/2" LOWERED CONTROL ARM
CHLC061
1984-1995 TOYOTA $195.95

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3/4 TON $365.00
1 TON $445.00
S-10 & S-15 ..... $285.00
ASTROVAN $285.00
TOYOTA $285.00
EXTRA LEAFS $30.00

CHEVROLET/GMC FULL SIZE TRUCK
Available in these drops ---Stock 1", 2", 3", 4", 5", 6"

CHEVROLET S-10 & S-15
Available in these drops ---Stock, 1", 2", 3", 4", 5"

CHEVROLET /ASTROVAN
Available in these drops ---Stock, 1", 2", 3", 4" (all steel)

TOYOTA
Available in these drops ---Stock, 1", 2", 3", 4",

DODGE, FULL SIZE
Available in these drops ---Stock, 1", 2", 3", 4", 5", 6"
(6" Not Available for 1/2 Ton 1994-1996)

DODGE, DAKOTA
Available in these drops ---Stock, 1", 2", 3", 4",

FORD, FULL SIZE
Available in these drops ---Stock, 1", 2", 3", 4", 5", 6"

CHISHOLM CAN DUPLICATE OR
1ANUFACTURE ALMOST ANY TYPE OF
MULTI-LEAF SPRING MADE.
'ALL FOR MORE INFORMATION.

MONO LEAF SPRINGS

FRONT SPRINGS --- $315.00
(Chevy 3" drop)
(Ford std eye 3" - rev eye 4" drop)

D4754CTF	1947-54 CHEVY TRK. 1/2 TON
D5559CTFR	1955-59 CHEVY TRK. 1/2 TON
D4852FTFS	1948-52 FORD F100 STD EYE
D4852FTFR	1948-52 FORD F100 REV EYE
D5356FTFS	1953-56 FORD F100 STD EYE
D5356FTFR	1953-56 FORD F100 REV EYE
D5760FTFS	1957-60 FORD F100 STD EYE
D5760FTFR	1957-60 FORD F100 REV EYE
D6164FTFS	1961-64 FORD F100 STD EYE
D6164FTFR	1961-64 FORD F100 REV EYE

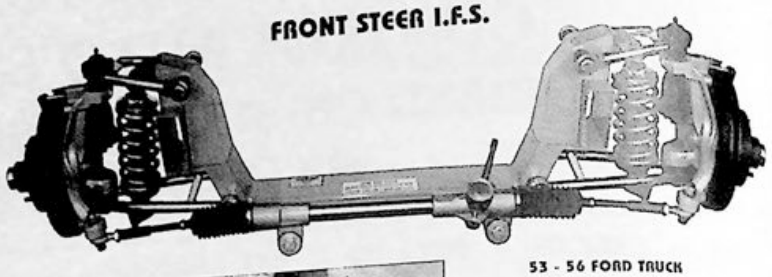
FRONT MONO LEAF SPRINGS INCLUDE U-BOLTS

REAR SPRINGS --- $350.00
(Chevy 3" drop)
(Ford std eye 3" - rev eye 4" drop)

D5559CTRS	1955-59 CHEVY TRK STD EYE
D5559CTRR	1955-59 CHEVY TRK REV EYE
D4852FTRS	1948-52 FORD F100 STD EYE
D4852FTRR	1948-52 FORD F100 REV EYE
D5356FTRS	1953-56 FORD F100 STD EYE
D5356FTRR	1953-56 FORD F100 REV EYE
D5760FTRS	1957-60 FORD F100 STD EYE
D5760FTRR	1957-60 FORD F100 REV EYE
D6467FTRS	1964-64 FORD F100 STD EYE
D6467FTRR	1964-64 FORD F100 REV EYE

REAR MONO LEAF SPRINGS, U-BOLTS SOLD SEPARATELY

FRONT STEER I.F.S.



FRONT STEER I.F.S.

THIS IS OUR HEAVIEST DUTY AND BEST SELLING I.F.S. WE START WITH A 2 X 4 X .120 TUBE CROSSMEMBER AND ADD OUR H.D. 1" X .156 TUBULAR CONTROL ARMS WITH 2-POSITION COIL OVER SHOCK MOUNTS. AVOMATIC SHOCKS ARE USED WITH POWDER-COATED SPRINGS FOR A GREAT RIDE. 3-POSITION UPPER SHOCK MOUNTS ALLOW YOU TO RAISE OR LOWER YOUR CAR. 70-81 CAMARO SPINDLES AND 11" BRAKES HAVE 5 X 4-3/4" BOLT PATTERN. OTHER PATTERNS AVAILABLE (5 X 4-1/2 - 5 X 5). FLAMING RIVER INDUSTRIES MANUAL RACK & PINION OR 83 - 89 T-BIRD POWER R&P CONTROLS DIRECTION. 57-1/4" TREAD WIDTH STD. BARE METAL FINISH STD. ON ALL PARTS.

AVAILABLE IN STAGE I OR STAGE II TO FIT THE FOLLOWING CARS AND TRUCKS, OR WE CAN CUSTOM BUILD ONE FOR ALMOST ANYTHING.

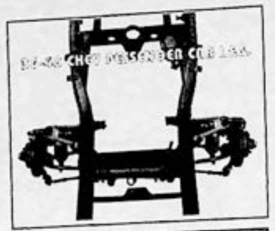
35 - 53 FORD CARS
35 - 60 FORD TRUCKS
33 - 54 CHEV CARS
33 - 59 CHEV TRUCKS
33 - 39 MOPAR
40 - 55 MOPAR TRUCKS

STAGE I I.F.S.	1600.00
STAGE II I.F.S.	2395.00
POWER R&P - ADD	175.00
CHROME "A" ARMS - ADD	250.00
12" ROTORS - ADD	200.00
ANTI-SWAY BARS - ADD	175.00

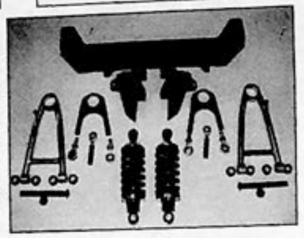
53 - 56 FORD TRUCK
55 - 59 CHEVY TRUCK
I.F.S. SHOWN ABOVE

36 - 48 CHEV PASSENGER CAR I.F.S.

46 CHEV PICKUP



STAGE I I.F.S. KIT

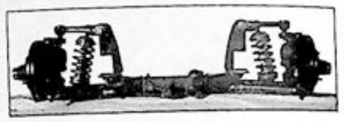


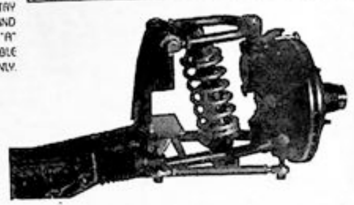
OUR FRONT-STEER STAGE 1 I.F.S. UNIT IS A REAL MONEY SAVER. WE PROVIDE THE PARTS PICTURED HERE AND YOU FURNISH THE SPINDLES-ROTORS-CALIPERS AND LOWER BALL JOINTS FROM A 70 - 76 GM INTERMEDIATE (CAMARO, ETC.). THE UPPER BALL JOINTS FROM A 73 - 88 GM INTERMEDIATE, AND A 84 - 89 FORD T-BIRD RACK AND PINION. YOU SAVE $800.00 OFF THE PRICE OF OUR COMPLETE STAGE II I.F.S. YOU CAN BUY THE PARTS YOU NEED TO FURNISH FOR ABOUT $250.00 FOR YOU GUYS THAT LIKE TO WORK ON YOUR OWN CARS AND WANT TO SAVE $$$ - THIS IS YOUR KIT!!

NARROW FRONT-STEER I.F.S.

WE BUILD THIS UNIT TO FIT ANGLIAS - FIATS - AUSTINS, AND OTHER NARROW CARS (OLDER MASERATIS - MG'S, ETC.). WE USE A COLEMAN STOCK CAR RACK & PINION WITH 18" INNER PIVOT DISTANCE. THIS ALLOWS US TO USE A NORMAL LENGTH SET OF "A" ARMS, SO THE NARROW TREAD WIDTH STILL HAS THE PROPER GEOMETRY AND RIDE. 10 1/2" G.M. ROTORS - SPINDLES AND CALIPERS MOUNT TO HEAVY DUTY TUBULAR "A" ARMS. AVOMATIC SHOCKS ON ADJUSTABLE MOUNTS CONTROL THE RIDE. MANUAL STEER ONLY. 47-1/2" TREAD WIDTH.

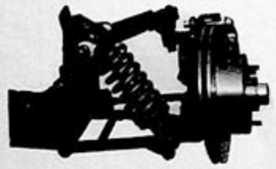
STAGE II I.F.S.	2495.00
CHROME "A" ARMS - ADD	250.00
ANTI-SWAY BAR	175.00





33-34 FORD I.F.S.

FOR 33-34 FORDS, WE OFFER THIS I.F.S. IN BOLT-IN OR WELD-IN STYLE. BOTH UNITS ALIGN TO STOCK FRAME HOLES, MAKING INSTALLATION FOOLPROOF. THE FENDER BRACKET MOUNT IS INCLUDED AND THE FENDER BRACKETS CAN EASILY BE MODIFIED TO BOLT RIGHT ON. AVAILABLE 55" HUB-TO-HUB WIDTH. POWER STEERING AND CHROME "A" ARMS AVAILABLE. USES OUR MODIFIED 79 -88 G.M. SPINDLE AND BRAKE ASSEMBLY.

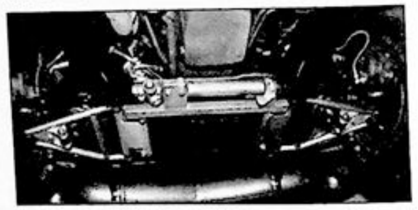


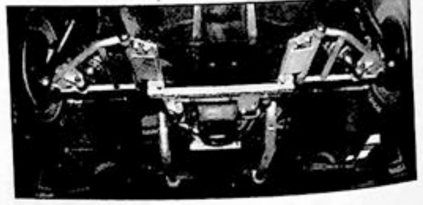
3-POSITION UPPER SHOCK MOUNTS ALLOW YOU TO ADJUST THE RIDE HEIGHT WHERE YOU WANT IT.

STAGE II I.F.S.	2395.00
POWER R&P - ADD	175.00
CHROME "A" ARMS	250.00
BOLT IN	100.00
ANTI-SWAY BAR	175.00

55 - 57 CHEVY I.F.S.

THIS KIT ALLOWS YOU TO COMPLETELY UPGRADE THE FRONT SUSPENSION OF THESE GREAT OLD CARS. WE FURNISH TUBULAR UPPER AND LOWER CONTROL ARMS (LOWERS ARE SHORTENED TO CORRECT FRONT END GEOMETRY). LOWER CONTROL ARM ADAPTERS. A 85 - 88 BUICK ELECTRA POWER RACK AND PINION, AVO COIL OVER SHOCKS AND MID 70'S G.M. SPINDLES - ROTORS - CALIPERS AND BALL JOINTS. THE SPINDLES ARE MODIFIED TO ACCEPT OUR REAR-MOUNTED STEERING ARMS FOR CORRECT AKERMAN GEOMETRY AND A TIGHTER TURNING RADIUS THAN STOCK. HEIGHT IS ADJUSTABLE FROM 2" - 4" LOWER THAN STOCK. THE BEST PART IS THIS KIT BOLTS IN WITH HAND TOOLS AND ONLY REQUIRES STEERING COLUMN MODIFICATIONS AND A POWER STEERING PUMP TO COMPLETE. THIS IS THE MOST ADVANCED I.F.S. AVAILABLE FOR THESE CARS.

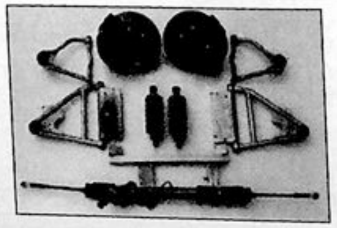




HIGHBOY I.F.S.

OPEN-WHEELED HIGHBOYS NEED A SHARP-LOOKING SUSPENSION. WE CAN CUSTOM BUILD ONE FOR YOUR CAR, REGARDLESS OF THE TYPE OF FRAME YOU ARE USING. WE BUILD SPECIAL LONG "A" ARMS FOR CARS WITH NARROW OR "PINCHED" FRAMES. USES 79 - 88 G.M. SPINDLES AND BRAKES. ADD OUR CUSTOM CHROME PACKAGE AND YOU'LL LOOK SHARP!

STAGE II I.F.S.	2395.00
POWER R&P - ADD	175.00
CHROME "A" ARMS	250.00
ANTI-SWAY BAR	175.00

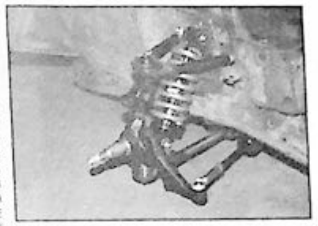


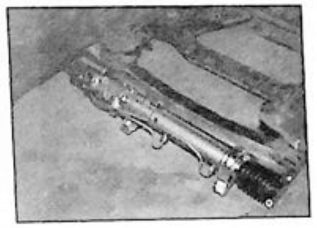
STAGE II I.F.S.	$2675.00
CHROME "A" ARMS - ADD	350.00
ANTI-SWAY BAR	175.00
STEERING HOOK-UP KIT	195.00
12" G.M. BRAKES	200.00

62 - 67 CHEVY II - NOVA I.F.S.

IF DETROIT EVER BUILT A CAR THAT NEEDED A WHOLE NEW FRONT SUSPENSION, THE CHEVY II IS IT! INCORRECT GEOMETRY, WHIMPY "A" ARMS AND STEERING LINKAGE, AND SPRINGS LOCATED ON TOP OF THE UPPER "A" ARMS ADD UP TO TROUBLE. NOW YOU CAN CORRECT ALL THIS MISERY WITH OUR STAGE II I.F.S. UNIT. AVAILABLE IN REAR STEER, FOR CARS WITH STOCK CHEVY II OIL PANS OR FRONT STEER FOR OTHERS (INCLUDING BIG BLOCKS). MINIMAL WELDING IS REQUIRED TO INSTALL, OR YOU CAN SEND US YOUR SUB FRAME AND WE CAN INSTALL IT FOR YOU AT A NOMINAL FEE. AVO COIL-OVER SHOCKS CONTROL THE RIDE, LOWERS YOUR CAR FOR THAT "JUST RIGHT" LOOK, AND IT'S ADJUSTABLE UP OR DOWN FROM THERE.

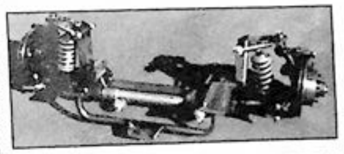
STAGE II I.F.S.	2495.00
POWER R&P	175.00
CHROME "A" ARMS	250.00

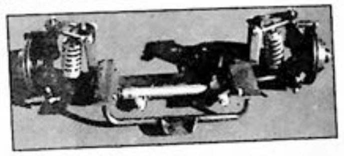




53 - 62 Corvette Bolt-In I.F.S

THE STOCK CORVETTE SUSPENSION IS THE SAME UNIT USED IN 49 CHEVY PASSENGER CARS. THE GOOD PART IS IT BOLTS IN SO YOU CAN GET THIS PIECE OF JUNK OUT OF YOUR CAR WITH MINIMUM EFFORT. OUR NEW FRONT STEER, BOLT-IN I.F.S. IS 1" NARROWER THAN STOCK, SO YOU CAN INSTALL BIGGER TIRES AND WHEELS. DISC BRAKES AND COIL-OVER SHOCKS IMPROVE STOPPING POWER AND GIVE YOU A SMOOTH RIDE. MODIFICATIONS MUST BE MADE TO YOUR STEERING COLUMN TO INSTALL THIS KIT. ADJUSTABLE TOP SHOCK MOUNT LETS YOU ADJUST THE HEIGHT OF THE CAR WHERE YOU WANT IT.





STAGE II I.F.S.	2495.00
POWER R&P - ADD	175.00
CHROME "A" ARMS	250.00
ANTI-SWAY BAR	175.00

AVO SHOCKS AND SPRINGS

THE BEST COIL-OVER SHOCK ON THIS PLANET. WE'VE USED EVERY SHOCK ON THE MARKET OVER THE LAST 25 YEARS, AND THIS IS THE BEST. OUR FRONT AND REAR SUSPENSION SYSTEMS COME WITH AVOMATICS. FOR AN ADDITIONAL CHARGE, WE CAN FURNISH THE EXTERNALLY ADJUSTABLE AVO PROMASTARS. THE SAN 3855 IS FOR FRONT APPLICATIONS. THE SAN 4855 IS FOR THE REAR END. FRONT SHOCKS USE POLY BUSHING ON TOP AND BEARING MOUNT ON BOTTOM. REAR SHOCKS USE POLY MOUNT ON BOTH ENDS. SHOCK PRICE SHOWN IS WITHOUT SPRINGS.

PART NO.	EXTENDED HEIGHT	RECOMMENDED RIDE HEIGHT	COMPRESSED HEIGHT
SAN-3855-P	11.25"	9.5" - 10"	9"
SAN-4855-P	15"	11.5 - 12"	10.5"

AVO MATIC	275.00 PR
AVO PROMASTAR	330.00 PR
SPRINGS - ADD	75.00 PR

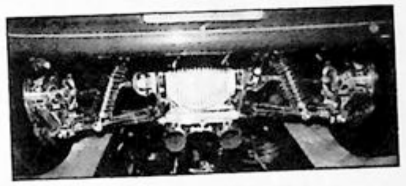
SPRINGS

7"	9"
7-250	9-140
7-300	9-180
7-350	9-220
7-400	9-250
7-450	9-300
7-550	9-350
7-650	9-400
7-750	9-450
	9-500
	9-550

I.R.S. REAR END KITS

WE HAVE EVERYTHING YOU NEED TO INSTALL A CORVETTE OR JAGUAR REAR END IN ANY VEHICLE. WE HAVE CROSSMEMBERS WITH BOLT-ON SHOCK MOUNTS, TRACTION BAR KITS, PINION SUPPORT KITS AND CUSTOM-BUILT OUTER HUB CARRIERS FOR JAGUAR OR CORVETTE REAR ENDS.

JAG HUB CARRIER



JAG REAR CROSSMEMBER

CORVETTE TRACTION BAR

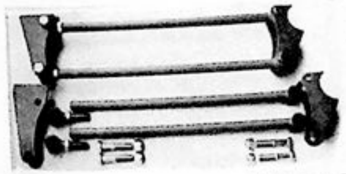
COMPLETE JAG KIT	495.00
CORVETTE KIT	495.00
HUB CARRIERS - PR	750.00
CORVETTE TRACTION BARS - PR	295.00

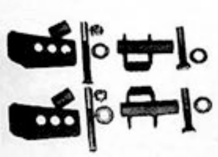
REAR SUSPENSION KITS

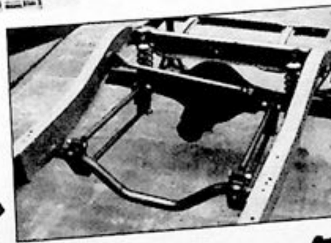
TO COMPLETE YOUR SUSPENSION PACKAGE, WE OFFER OUR PARALLEL 4-LINK, COIL-OVER SHOCK KIT TO COMPLEMENT OUR I.F.S. DIE-STAMPED AND LASER CUT 3/16" STEEL BRACKETS FIT PERFECTLY. HEAVY DUTY 1" X .156 SEAMLESS TUBING BARS HAVE URETHANE BUSHINGS AND 3/4" ADJUSTERS. OUR PANHARD ROD FEATURES A WELD-ON HOUSING BRACKET, ALLOWING YOU TO INSTALL IT ON ANY REAR END AND USE THE LONGEST ROD POSSIBLE FOR THE BEST MECHANICAL ADVANTAGE. THIS COMPLETE REAR SUSPENSION SYSTEM IS AVAILABLE INSTALLED IN OUR REAR SUB FRAME FOR SUPER EASY PRO-STREET MODIFICATION. MODELS TO FIT ALMOST ANY CAR OR TRUCK. COMPLETE KITS INCLUDE THE FOLLOWING:

- PARALLEL 4-LINK
- AVO COIL-OVER SHOCKS
- 3-POSITION LOWER SHOCK MOUNTS
- UPPER CROSSMEMBER
- PANHARD ROD
- INSTRUCTIONS

• COMPLETE KIT	895.00
• CHROME 4-BARS	150.00
• REAR SUB FRAME	475.00
• NARROWED 8" OR 9"	795.00
• REAR HOUSING &	
• RESPLINED AXLES	

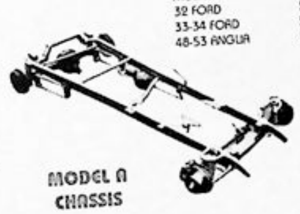






HOT ROD AND RACE CAR CHASSIS

MODEL A	4600.00
32 FORD	5200.00
33-34 FORD	5800.00
48-53 ANGLIA	5000.00

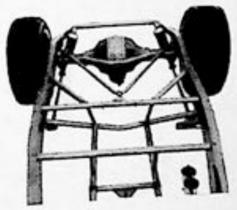


MODEL A CHASSIS

40 CHEV CHASSIS

OUR INNOVATIVE CHASSIS DESIGNS FOR '23 TO '34 FORDS AND CHEVYS MAKE THE PERFECT FOUNDATION FOR YOUR HOT ROD PROJECT. ALL UNITS ARE ASSEMBLED IN AIRCRAFT TYPE FIXTURES USING TIG AND MIG WELDING. SEVERAL SUSPENSION AND POWER TRAIN OPTIONS ARE AVAILABLE - CALL US WITH YOUR NEEDS. CHASSIS INCLUDES - MOTOR AND TRANS MOUNTS - COMPLETE I.F.S. - COMPLETE REAR SUSPENSION - BRAKE PEDAL ASSEMBLY. REAR END EXTRA. CUSTOM-BUILT CHASSIS ALSO AVAILABLE FOR ANGLIA - WILLYS - FIAT OR ANYTHING YOU CAN DREAM UP. ROUND TUBE SPACE FRAMES ALSO AVAILABLE.

32 FORD CHASSIS

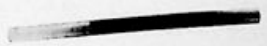


STEERING UNIVERSAL JOINTS

PRECISION NEEDLE BEARING UNIVERSAL JOINTS AVAILABLE IN THE FOLLOWING SPLINE SIZES:

9/16-17	3/4-30	13/16-36	17MMDD 1-48	$75.00
9/16-26	3/4-36	3/4DD	5/8 SMOOTH	
5/8-36	3/4-48	1DD	3/4 SMOOTH	

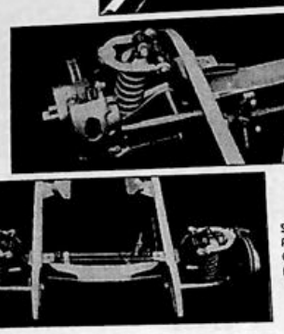
3/4 O.D. X 48 SPLINE SHAFT IS AVAILABLE IN 12", 18" & 24" LENGTHS WITH 4" OF SPLINE AT EACH END. $30.00
3/4" MALE ROD ENDS FOR STEERING SHAFT SUPPORT $18.00



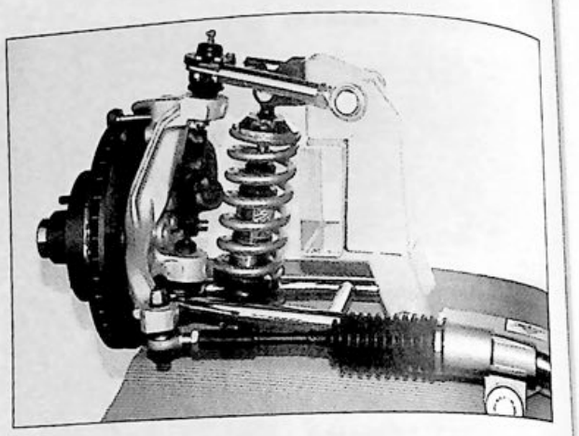
REAR-STEER I.F.S.

MOST PRE-1934 CARS AND TRUCKS NEED A REAR STEER I.F.S. TO ELIMINATE RACK AND PINION INTERFERENCE WITH STOCK CROSS MEMBERS, SPLASH APRON, OR RADIATOR. A TRU REAR-MOUNTED RACK AND PINION IS AVAILABLE IN MANUAL OR POWER STEERING. A 1979 - 1988 G.M. INTERMEDIATE SPINDLE - ROTOR - CALIPER ASSEMBLY IS MODIFIED TO ACCEPT OUR BOLT-ON REAR-MOUNTED STEERING ARM FOR THE CORRECT AKERMAN GEOMETRY AND STEERING RATIO. AVO SHOCKS VALVED TO OUR SPECS GIVE YOU AN EXCELLENT RIDE. BRAKES FEATURE 10-1/2" ROTORS AND SINGLE PISTON CALIPERS. HEAVY WALLED TUBULAR "A" ARMS ARE THE STRONGEST IN THE INDUSTRY. MODELS TO FIT THESE AND OTHER CARS AND TRUCKS.

- '28 - 34 FORD
- '28 - 36 CHEV
- '33 - 41 WILLYS
- '28 - 34 MOPAR
- PRO STREET CARS
- HOT CARS
- MOST 34 AND OLDER VEHICLES

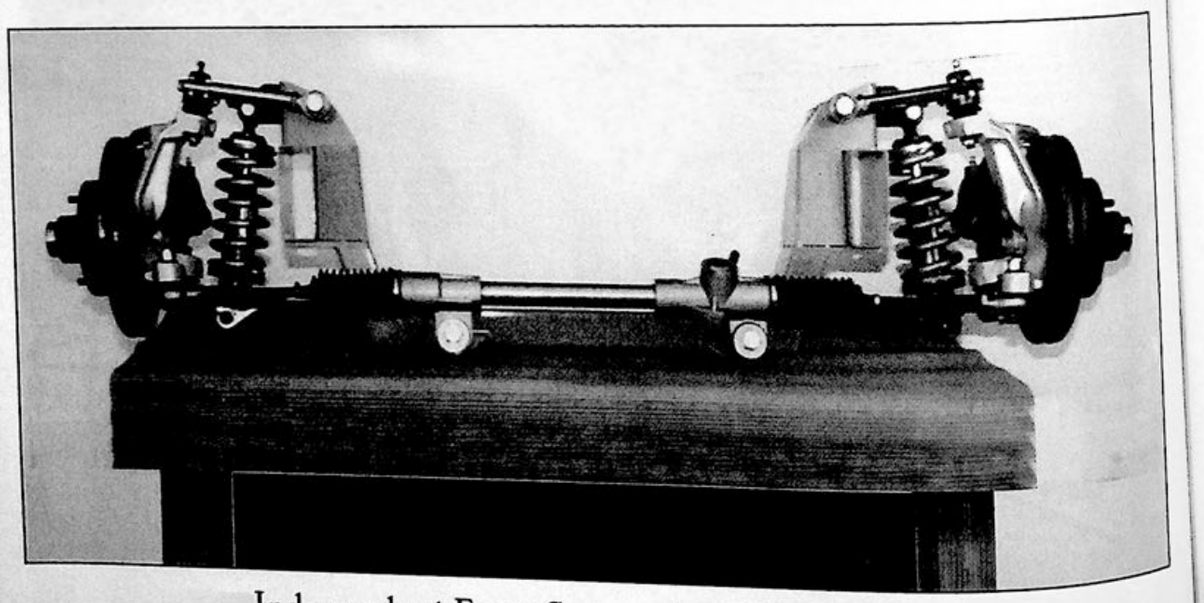


STAGE II I.F.S.	$395.00
POWER R&P - ADD	175.00
CHROME "A" ARMS	$250.00
ANTI-SWAY BAR	175.00



CHISHOLM SUSPENSION

(310) 946-3183



Independent Front Suspension (Stage Two)

JimMeyer

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Chassis & Suspension Systems For

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- Pro Street Cars
- Pickups

Models custom built, for your car or truck featuring tubular"A" arms, GM spindles & brakes, manual or power rack & pinion steering, and Avo or Pro Shock coilover shocks. The ultimate ride, performance & looks at a very affordable price.

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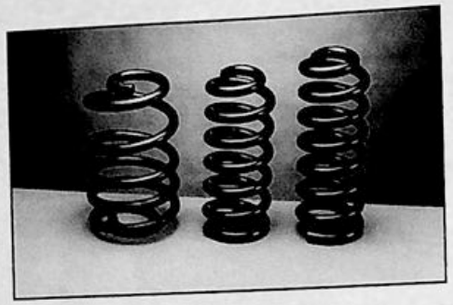
1996 - CHISHOLM ENTERPRISES - 1996

COIL SPRINGS

Chisholm has coil springs available for most all cars, trucks and recreation vehicles. Springs come in various drops and weight rates. They come in stock, 1", 2", drops and in standard, heavy duty, variable and two stage rates. We have springs for small block and big block engines.

STOCK, 1" & 2" DROP COILS



(FRONT COILS)

CHEV/GMC, 1963-96, 1/2 TON	$95.55
CHEV/GMC, 1973-96, 3/4 TON (SB)	$95.55
CHEV/GMC, 1973-96, 1 TON (CREW CAB)	$147.90
CHEV/GMC, 1988-96, 3/4 TON (BB)	$120.58
CHEV/GMC, S-10 & S-15, 1988-93	$61.65
CHEV/GMC, S-10 & S-15, 1994-96	$97.50
DODGE, 1971-93, 1/2 TON	$98.28
DODGE, 1994-96, 1/2, 3/4, 1 TON	$125.00
DODGE, DAKOTA, 1986-95	$103.84
MOST DOMESTIC CARS (SOME EXCEPTIONS)	$125.00

STOCK, 1", 2", 3", 4" DROP COILS (REAR COILS)

CHEV/GMC, 1960-72, C-10, C-20	$96.79

"OTHER FRONT AND REAR COILS AVAILABLE FOR MOST FOREIGN AND DOMESTIC AUTO'S, TRUCKS, RECREATION VEHICLES AND 18 WHEELERS".

For all your suspension needs, availability and prices
Call Chisholm. (310) 946-3183

The Weekday Warrior

CHISHOLM'S DUAL SHOCK KIT FOR RV's & PICK-UP TRUCKS

We have designed a Dual Shock Kit for most full size Pick-ups and Recreation vehicles. It was designed to improve the handling of these vehicles. It works as an anti-sway system, greatly reducing the body sway caused from turns, high winds, being passed by larger vehicles and bad highways.

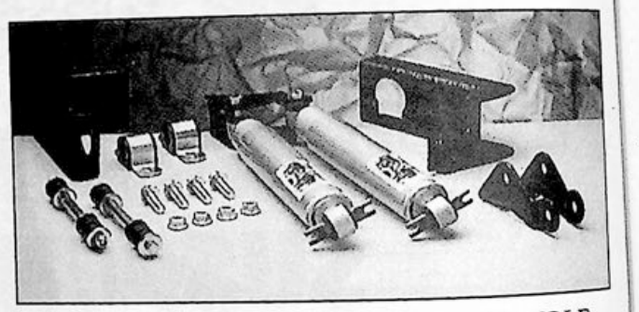
For RV's, 2 High Rebound 70/30 GC-Series, Gas Cushioned are installed at each wheel location. The 70 on the extended side and 30 on the compressed side. This works to hold body sway or body roll to a minimum.

This kit is perhaps the best anti-sway system on the market today.

For pick-up trucks, the Dual Shock kit only goes on the rear of the Vehicle.

Most RV's (2 Axle's)	----------	$799.95
Most RV's (3Axle's)	----------	$999.95
Most Pick-up Trucks $250.00	----------	

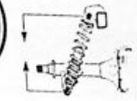
(All kits are come complete with brackets and shocks)



IF YOU WANT YOUR VEHICLE TO HANDLE BETTER IN THE TURNS, TRY CHISHOLM'S DUAL SHOCK KIT.

LET THE EXPERTS AT CHISHOLM ENTERPRISES MEET ALL YOUR SUSPENSION NEEDS. COIL SPRINGS, CONTROL ARMS, LEAF SPRINGS, POLYURETHANE BUSHINGS, U-BOLTS, 70/30 HIGH REBOUND SHOCKS, STRUTS, AIR-RIDE SYSTEMS, DUAL SHOCK KITS, WELD WHEELS, COIL OVER SHOCKS & MUCH MORE. CALL FOR MORE INFORMATION
1-800-848-2333

PRO SHOCKS



HOW TO MEASURE YOUR VEHICLE

Using the compressed and extended lengths taken from existing shocks may not be the most accurate for your vehicle. Set the vehicle at the desired ride height and measure from the center of the upper shock mount to the center of the lower shock mount to determine the length of shock needed. This method of measuring shock lengths works with both coil-over and non coil-over applications. If a measurement should fall between shock lengths, choose the shock that gives you the most compression (in) travel. Refer to the charts on the following pages for our shock lengths to fit your appl cation.

HOW TO SELECT PROPER SPRING RATE

Below we have compiled a list of the most commonly used vehicles and acessories used in the Street Rod Industry. If you do not have the use of scales, a more accurate selection of spring rates will be made available to you by our tech staff to assist in helping select the "perfect" set-up on your vehicle. If you use scales, remember to add any additional loading such as trailers, extra persons, etc. to your rear weight. Also, always keep the vehicle level while using the scales. Use the Coil-Over Spring Rate Chart on the following page to select the correct shock and spring combination.

★ AVERAGE STREET ROD WEIGHTS ★

YEAR	CAR	FRONT WEIGHT	REAR WEIGHT	OPTION	FRONT WEIGHT	REAR WEIGHT
-27	Ford Coupe	1200	1300	4-Door Sedan	0	+ 125
28-31	Ford Coupe	1350	1400	Sedan Delivery	+ 50	+ 200
32-34	Ford Coupe	1400	1600	Roadster	- 50	- 50
35-38	Ford Coupe	1600	1700	Less Fenders	- 100	- 75
39-40	Ford Coupe	1700	1800	Air Conditioning	+ 75	+ 25
40-48	Ford Coupe	1750	1700	Big Block Engine	+ 175	+ 25
32-38	Chevrolet, Plymouth & Dodge Coupe	1500	1550	Ford, Chevrolet, Small Block	+ 75	+ 25
39-40	Chevrolet, Plymouth & Dodge Coupe	1600	1600	A Model with Side or Rear Tanks		+ 125
40-48	Chevrolet, Plymouth & Dodge Coupe	1700	1600			

★ STREET ROD SHOCKS — NON COIL-OVER ★

POLISHED, CHROME PLATED, STEEL BODY SHOCKS
WITH URETHANE BUSHINGS AND STEEL SLEEVES FOR BOTH ½-INCH and ⅝-INCH MOUNTINGS

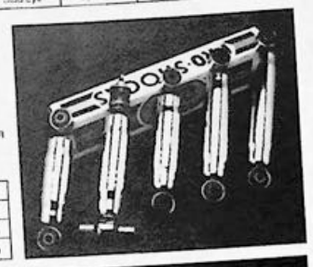
PART NUMBER	SM300	SM400	SM401	SM500	SM600
RIDE HEIGHT MOUNTED LENGTH	9 inches	10 inches	10.5 inches	12 inches	13.5 inches
CLOSED COMPRESSED LENGTH	7.5 inches	8 inches	8.75 inches	9.5 inches	10.5 inches
OPEN EXTENDED LENGTH	10.5 inches	12.1 inches	12.5 inches	14.5 inches	16.5 inches
MOUNTING ENDS	Eye Eye	Stud Eye	Eye Eye	Eye Eye	Eye Eye

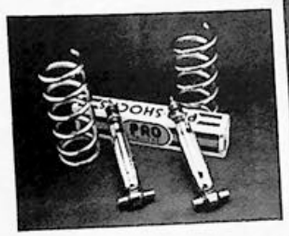
Mustang II/Pinto Non Coil-Over Kit with Custom Chrome Plated Stock Diameter Spring

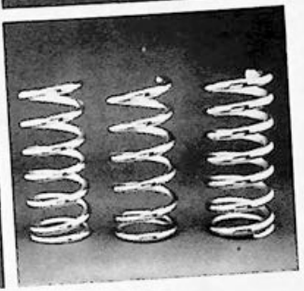
2 - SM400 PRO SHOCKS
2 – 11-350, 11-425, 11-500 PRO-SPRINGS 3½" O.D. DIAMETER
Note: shocks or springs can be purchased separately

PART NUMBER	YEAR	MODEL (Cars and Pickups)
SM400-350*	28-31	Ford, Chevrolet, Dodge, Plymouth
SM400-425	32-38	Ford, Chevrolet, Dodge, Plymouth
SM400-500	39-56	Ford, Chevrolet, Dodge, Plymouth

*Note: If big block, go to next spring rate. Shocks and Springs are chrome plated.







NEW "AC" SERIES THREADED BODY ALUMINUM ★ COIL-OVER SHOCKS ★

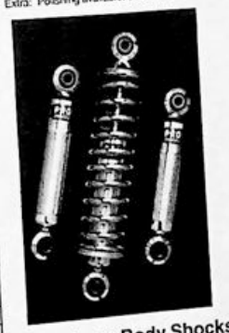
MOUNTED LENGTH	PART NUMBER	YEAR	TYPE
10½ inches	AC350 350	28-31	Ford, Chevrolet
10½ inches	AC350 400	32-34	Ford, Chevrolet, Dodge, Plymouth
10½ inches	AC350 450	35-38	Ford, Chevrolet, Dodge, Plymouth
10½ inches	AC350 500	39-40	Ford, Chevrolet, Dodge, Plymouth
10½ inches	AC350 550	40-48	Ford, Chevrolet, Dodge, Plymouth
11½ inches	AC450 350	28-31	Ford, Chevrolet
11½ inches	AC450 400	32-34	Ford, Chevrolet, Dodge, Plymouth
11½ inches	AC450 450	35-38	Ford, Chevrolet, Dodge, Plymouth
11½ inches	AC450 500	39-40	Ford, Chevrolet, Dodge, Plymouth
11½ inches	AC450 550	40-48	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC550 350	28-31	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC550 400	32-34	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC550 450	35-38	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC550 500	39-40	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC550 550	40-48	Ford, Chevrolet, Dodge, Plymouth

MOUNTED LENGTH	PART NUMBER	YEAR	TYPE
11½ inches	AC430 200	27-31	Ford, Chevrolet, Dodge, Plymouth
11½ inches	AC430 225	32-34	Ford, Chevrolet, Dodge, Plymouth
11½ inches	AC430 250	35-38	Ford, Chevrolet, Dodge, Plymouth
11½ inches	AC430 275	39-40	Ford, Chevrolet, Dodge, Plymouth
11½ inches	AC530 300	40-48	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC530 200	27-31	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC530 225	32-34	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC530 250	35-38	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC530 275	39-40	Ford, Chevrolet, Dodge, Plymouth
13½ inches	AC530 300	40-48	Ford, Chevrolet, Dodge, Plymouth
15 inches	AC630 225	32-34	Ford, Chevrolet, Dodge, Plymouth
15 inches	AC630 250	35-38	Ford, Chevrolet, Dodge, Plymouth
15 inches	AC630 275	39-40	Ford, Chevrolet, Dodge, Plymouth
15 inches	AC630 300	40-48	Ford, Chevrolet, Dodge, Plymouth

Assembled Kits

Standard features include:
1. Shock Body and Coil-Over Kit (machine finish)
2. Aluminum eye rings – ¾" mounting holes
3. All springs chrome plated
4. Spanner wrench

Extra: Polishing available. See Price List.



Aluminum Body Shocks
CROSS REFERENCE

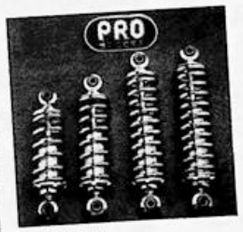
350SR — AC350	530SR — AC530
430SR — AC430	550SR — AC550
450SR — AC450	630SR — AC630

PRO SHOCKS

★ COIL-OVER SHOCKS ★

Front – Assembled Kits

MOUNTED LENGTH	PART NUMBER	YEAR	TYPE
10½ inches	350 350	28-31	Ford, Chevrolet
10½ inches	350 400	32-34	Ford, Chevrolet, Dodge, Plymouth
10½ inches	350 450	35-38	Ford, Chevrolet, Dodge, Plymouth
10½ inches	350 500	39-40	Ford, Chevrolet, Dodge, Plymouth
10½ inches	350 550	40-48	Ford, Chevrolet, Dodge, Plymouth
11½ inches	450 350	28-31	Ford, Chevrolet, Dodge, Plymouth
11½ inches	450 400	32-34	Ford, Chevrolet, Dodge, Plymouth
11½ inches	450 450	35-38	Ford, Chevrolet, Dodge, Plymouth
11½ inches	450 500	39-40	Ford, Chevrolet, Dodge, Plymouth
11½ inches	450 550	40-48	Ford, Chevrolet, Dodge, Plymouth
13½ inches	550 350	28-31	Ford, Chevrolet, Dodge, Plymouth
13½ inches	550 400	32-34	Ford, Chevrolet, Dodge, Plymouth
13½ inches	550 450	35-38	Ford, Chevrolet, Dodge, Plymouth
13½ inches	550 500	39-40	Ford, Chevrolet, Dodge, Plymouth
13½ inches	550 550	40-48	Ford, Chevrolet, Dodge, Plymouth

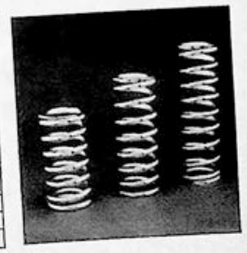


Standard features:
1. Chrome shock body
2. Coil-over Kit – Polished
3. Ends aluminum eye ring with urethane bushing and ½-inch sleeves
4. Chrome springs
5. Spanner wrench

Note: If big block, go to next spring rate.

Rear – Assembled Kits

MOUNTED LENGTH	PART NUMBER	YEAR	TYPE
11½ inches	430 200	27-31	Ford, Chevrolet, Dodge, Plymouth
11½ inches	430 225	32-34	Ford, Chevrolet, Dodge, Plymouth
11½ inches	430 250	35-38	Ford, Chevrolet, Dodge, Plymouth
11½ inches	430 275	39-40	Ford, Chevrolet, Dodge, Plymouth
11½ inches	430 300	40-48	Ford, Chevrolet, Dodge, Plymouth
13½ inches	530 200	27-31	Ford, Chevrolet, Dodge, Plymouth
13½ inches	530 225	32-34	Ford, Chevrolet, Dodge, Plymouth
13½ inches	530 250	35-38	Ford, Chevrolet, Dodge, Plymouth
13½ inches	530 275	39-40	Ford, Chevrolet, Dodge, Plymouth
13½ inches	530 300	40-48	Ford, Chevrolet, Dodge, Plymouth
15 inches	630 225	32-34	Ford, Chevrolet, Dodge, Plymouth
15 inches	630 250	35-38	Ford, Chevrolet, Dodge, Plymouth
15 inches	630 275	39-40	Ford, Chevrolet, Dodge, Plymouth
15 inches	630 300	40-48	Ford, Chevrolet, Dodge, Plymouth



COMPLETE LINE OF HIGH PERFORMANCE RACING COIL OVERS SHOCKS

SPORT BILLET

Forged "Billet" Aluminum Wheels for Pickups, Sport Truck, Sport Utility and Recreational Trucks.

The Sport Billet is designed as a value priced True Billet Aluminum wheel for SUV's (Sport Utility Vehicles). A great alternative to cast aluminum wheels, the Sport Billet is superior in both design and quality. The wheel features True Directional styling (left and right designs) C.N.C. Mill Cut 6061-T6 billet aluminum centers and comes with a fully polished finish standard. "Backed" by a 3-year structural warranty, the Sport Billet features a very dependable load rating of 2,100 lbs. for 15" and 2,600 lbs. for 16" load rating per wheel and exceeds OEM specifications. Each wheel comes standard with a push-thru center cap and an Optional Lug Cover Cap is available for the True billet wheel look.

PC	Part Number	Size	Bolt Circle	Rear Spcg	Load Rate
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PC	Part Number	Size	Bolt Circle	Rear Spcg	Load Rate
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SPORT BILLET OPTIONAL LUG COVER KITS

Part Number	Description
[illegible]	[illegible]
601-5308	Lug Cover Kit - 15" 4WD 2 Open (4.250" I.D. Bore), 2 Closed
[illegible]	[illegible]
601-5314	Lug Cover Kit-All Ford 2WD 8 Lug, 2-4" Closed and 2-6" Closed Covers

Part Number	Description
[illegible]	[illegible]
601-5414	Lug Cover Kit All GM/Dodge 2WD 8 Lug, 4-4" Tall Closed Covers
[illegible]	[illegible]

Cover Cap Kits require use of O.E.M. open-end acorn lug nut.

There is nothing in the World like the EVO Series: polished forged billet 6061-T6 aluminum, lightweight yet strong and supremely styled. Designed to appeal to the most discerning auto enthusiast, these wheels will add a touch of class to any Luxury Sedan, Sports Coupe or Sport Truck. Conceived from the development of our Type 80 Road Race wheel, all EVO designs are tested to the new ISO standards and are "Backed" by a limited 5-year structural and 3-year Finish warranty.

PC	Part Number	Size	Bolt Cir	Rear Spg	Center Bore
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PC	Part Number	Size	Bolt Cir	Rear Spg	Center Bore
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ PC = Popularity Code

15", 16", 16.5" and 17" Super-Single Series

High Strength Cold Forged "Billet" Aluminum Wheels for H/D 4x4's, H/D Trucks & Custom Trailers

- **PREMIUM MATERIALS** . . . Tough 6061-T6 Aircraft Grade Aluminum.
- **SUPERIOR STRENGTH** . . . All 3,200 lb. Load Rated 16 and 16.5" wheels are suitable for any 4WD or High Capacity Radial Trailer Tire.
- **RATED FOR USE OF UP TO 44" TALL TIRES.**
- **CONICAL SEAT LUG SYSTEM** . . . Use OEM or Acorn style lug nuts.
- **BLUE ROUGE POLISHED FINISH** . . . Billet Aluminum Polishes to a high luster for a long lasting finish.
- **100% CNC MILL CUT** (Left and Right) **DESIGNS.**

Super-Single II

PC	Part Number	Size	Bolt Circle	Rear Spg	Load Rate
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Typhoon & Roadhawk

PC	Part Number	Size	Bolt Circle	Rear Spg	Load Rate
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SUPER-SINGLE OPTIONAL LUG COVER KITS

Part Number	Description
[illegible]	[illegible]
601-5314	Lug Cover Kit All Ford 2WD 8 Lug, 2-4" Closed and 2-6" Closed Covers
[illegible]	[illegible]

Part Number	Description
[illegible]	[illegible]
601-5415	Lug Cover Kit All GM, Dodge 4WD 8 Lug, 2-4" Tall Open and 2-6" Closed Covers
[illegible]	[illegible]

Weld's VR Series for Front Wheel Drive and Positive Offset applications incorporate the same great billet features as our standard VR wheels. Additional features include large diameter centers for that Euro Style look, a deeper mounting pad (1 1/8") for added brake clearance and fully polished finish backed by a 3-year limited structural warranty.

VR-25

PC	Part Number	Size	Bolt Circle	Rear Spcg	Offset mm
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VR-27

PC	Part Number	Size	Bolt Circle	Rear Spcg	Offset mm
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VR-35

PC	Part Number	Size	Bolt Circle	Rear Spcg	Offset mm
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VR-36

PC	Part Number	Size	Bolt Circle	Rear Spcg	Offset mm
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

On all VR wheels use Conical Seat O.E. LUG NUTS ONLY! Polish Billet Hex Cap included. Hex Cap wrench included with set of 4 wheels.

VR ACCESSORIES

Part Number	Description
[illegible]	[illegible]

Hub Centric Rings (For Front Wheel Drive VR Series Wheels Only!)

Part No.	O.E. Bore	Description
[illegible]	[illegible]	[illegible]

VR Billet Wheels for Positive Offset and FWD Vehicles.

Rodlite

The beautiful Rodlite® is the innovative design that brings back a Blast from the Past, precision crafted of Cold Forged Aluminum. Rodlite® is superior in strength yet pounds lighter than similar styles. Brilliantly Polished and Guaranteed Tubeless and complete with Billet push-thru center cap standard.

THESE SIZES SUITABLE FOR DRAG RACING OR STREET USE

PC	Part Number	Size	Bolt Circle	Rear Spcg
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

THE FOLLOWING SIZES FOR DRAG RACING ONLY

PC	Part Number	Size	Bolt Circle	Rear Spcg
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PC = Popularity Code

Rodlite® Cover Cap Kits

Part No.	Description
[illegible]	[illegible]

Retro-Fit Rodlite® 3-Bar Knock-Off

Rodlite® Cover Cap/Knock-Off Kit

Part No.	Description
[illegible]	[illegible]

All "Rodlites" Require 1.510" Long Shank 1.687" Dia. Mag Style Lug Nuts and 1.250" O.D. Washers

Rodlite® Lug Packs

**Required on Rodlite® wheels with Lug Cover Cap

Part No.	Description
601-1422**	[illegible] Open end nuts w/centered washers
601-1424**	[illegible] Open end nuts w/centered washers
601-1429**	[illegible] Open end nuts w/centered washers

Part No.	Description
601-1415	[illegible] Closed End nuts w/centered washer, .687" dia. x 1.310" Shank Length
601-1414	[illegible] Closed End nuts w/centered washer .687" dia. x 1.310" Shank Length
601-1416	[illegible] Closed End nuts w/centered washer .687" dia. x 1.310" Shank Length

Weld Racing's Aluma-Dual Series wheels feature superior strength and a 3,200 lb. load rating per wheel. Made of 6061-T6 aircraft grade aluminum alloy, these wheels are far superior to cast aluminum. Our revolutionary designs are C.N.C. rotary forged and welded with C.N.C. Mill Cut designs for blueprint perfect tolerances. Each Aluma-Dual wheel is fully polished to a show quality finish and utilizes Weld Racing special conical seat lug insert washers. Optional Lug Cover Kit available or standard push through caps and lugs.

Aluma-Dual III

PC	Part No.	Size	Load Rate	General Application
A	63-0002	16x5.5	3200	GM/Ford/Dodge Front 8 Lug
A	63-6004	16x6	3200	GM/Ford/Dodge Rear 8 Lug
C	63-514702*	15x14	2400	GM/Ford/Dodge Rear 8 Lug

Roadhawk

PC	Part No.	Size	Load Rate	General Application
A	69-6002	16x5.5	3200	GM/Ford/Dodge Front 8 Lug
A	69-6004	16x6	3200	GM/Ford/Dodge Rear 8 Lug
C	69-514702*	15x14	2400	GM/Ford/Dodge Rear 8 Lug

Typhoon

PC	Part No.	Size	Load Rate	General Application
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Aluma-Dual Optional Lug Cover Kits

Part Number	Description
[illegible]	[illegible]

Standard Push-Thru Caps

Part No.	Description
[illegible]	[illegible]

Aluma-Dual Lug Packs

Part No.	Description
[illegible]	[illegible]

Weld Racing's popular Draglite, Pro-Star and Rodlite wheels are available for 2 wheel drive sport utility vehicles whose owners want that traditional race wheel look. Precision crafted of Cold Forged Aluminum each wheel is brilliantly polished, guaranteed tubeless and complete with center cap. Optional lug cover and Knock-Off Kits available.

Pro★Star Truck

PC	Part Number	Size	Bolt Circle	Rear Spcg
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Rodlite® Truck

PC	Part Number	Size	Bolt Circle	Rear Spcg
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PC = Popularity Code

Draglite Truck

PC	Part Number	Size	Bolt Circle	Rear Spcg
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Closed End Center Cap included with all Draglite Truck Wheels.

NOTICE: You must use the following Lug packs for Pro-Star & Rodlite 5x5 Truck Wheels

Part No.	Description
[illegible]	[illegible]

NOTICE: You must use the following Lug packs for Draglite Truck Wheels

Part No.	Description
[illegible]	[illegible]

NOTE: All Pro-Star, Rodlite and Draglite wheels are Not warranted for use with 31" and taller tires.

Pro★Star, Draglite and Rodlite® Cold Forged Aluminum Wheels for 2WD Pickup Trucks.

Weld Racing's VR Series wheels are available in 4 exciting styles for 4 Wheel Drive Pickups to accentuate todays sport utility vehicle owner who wants True Directional Billet styling without compromising quality and strength. Wheels available to fit GM, Ford, Dodge, Mazda, Nissan and Toyota.

PC	VR-11 / 26 Part No.	Size	Bolt Circle	Rear Spacing
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PC	VR-12 / 27 Part No.	Size	Bolt Circle	Rear Spacing
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

PC = Popularity Code

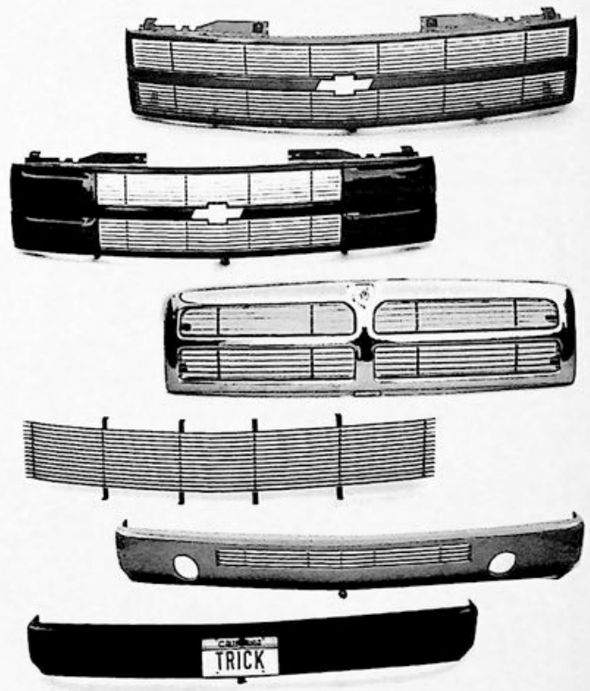
On all VR wheels use Conical Seat O.E. LUG NUTS ONLY! Polish Billet Hex Cap included. Hex Cap wrench included with set of 4 wheels.

VR ACCESSORIES

Part Number	Description
[illegible]	[illegible]

Part #	Item	Price
	"ROLL PAN HITCHES"	
1913	88-95 GM ROLL PAN HITCH 1/2 & 1 TON CL-4	$202.04
1912	88-95 GMC 1 TON ROLL PAN HITCH	$181.63
1910	88-95 GMC 1/2 TON ROLL PAN HITCH	$181.63
1923	94 FORD 1/2 TON CLASS 3 ROLL PAN HITCH	$181.63
	"ACCESSORIES"	
1909	88-94 CHEVY/GMC WINDSHIELD COWL	$106.12
1900-4	88-95 GMC S/B "STEEL" STAKE HOLE COVERS	$30.61
1900-6	88-95 GMC L/B "STEEL" STAKE HOLE COVERS	$45.92
1905	88-95 GMC SPARE TIRE RE-LOCATOR 1/2 TON	$42.86
1901	88-95 GMC TAILGATE HANDLE RE-LOCATOR	$51.02
1929	88-UP GMC TAILGATE LOCK	$40.61
1930	82-UP FORD TAILGATE HANDLE RE-LOCATOR KIT	$0.00
1953	94-95 CHEVY BILLET BOWTIE "HEARTBEAT"	$40.41
1951	94-95 CHEVY BILLET BOWTIE "EMBLEM"	$37.14
1949	ADDED CHARGE FOR POLISHED BOWTIE, "EA."	$4.08
1950	88-93 CHEVY BILLET BOWTIE EMBLEM	$34.29
1952	88-93 CHEVY BILLET BOWTIE HEARTBEAT EMBLEM	$37.96
1918	CHROME CHEVY BOWTIE HITCH COVER	$30.61
1917	CHROME SQUARE HITCH COVER	$22.06
1916	EXTENDED BALL MOUNT "4"	$35.37
1915	EXTENDED BALL MOUNT STRAIGHT	$32.65
1924	88-UP CHEVY BOWTIE LITE KIT (SMALL)	$69.76
1925	88-UP GMC LITE KIT	$69.76
1926	88-UP CHEVY & GMC OVAL LITE KIT	$69.76
1927	88-UP CHEVY & GMC SLOTTED LITE KIT	$69.76
1928	87-UP FORD STYLESIDE OVAL LITE KIT	$69.76
1969	FOG LIGHT KIT "2 LIGHTS, SWITCH & WIRES	$60.82
1960	GMC BILLET 3 PIECE COLUMN KIT "BRUSHED"	$34.69
1961	GMC BILLET 3 PIECE COLUMN KIT "BRUSHED"	$38.78
2015	71-72 CHEVY/GMC BILLET GRILL	$175.51
2007	73-80 CHEVY/GMC TRUCK BILLET GRILL	$161.22
2016	73-80 CHEVY/GMC (USE WITH STOCK SHELL)	$153.06
2017	81-88 CHEVY/GMC BILLET GRILL	$175.51
2008	81-88 CHEVY/GMC TRUCK "PHANTOM" GRILL	$342.86
2013	82-90 CHEVY/GMC "S-10/S-15" GRILL	$108.16
2006	85-94 CHEVY/ASTRO PHANTOM (USE W/ST SHELL)	$253.06
2005	85-94 CHEVY/ASTRO (USE W/STOCK SHELL)	$159.18
2003	85-94 CHEVY/GMC ASTRO FULL OPENING GRILL	$159.18
2009	88-91 CHEVY "SUBURBAN BLAZER & 1 TON"	$177.55
2000	88-93 CHEVY BILLET GRILL	$130.61
2010	88-93 CHEVY PHANTOM GRILL	$426.53
2001	91-92 CHEVY S-10 BILLET GRILL	$108.16
2040	91-94 CHEVY CAPRICE BILLET GRILL	$108.16
2032	93 CHEVY S-10 BILLET	$108.16
2002	94-95 CHEVY S-10 BILLET	$93.88
2004	94-95 CHEVY BILLET GRILL	$112.24
2034	95 CHEVY S-10 BLAZER BILLET	$93.88
2033	95 CHEVY/GMC ASTRO VAN BILLET GRILL	$159.18
2011	88-91 GMC "SUBURBAN, BLAZER & 1 TON"	$171.43
2020	88-93 GMC BILLET GRILL	$108.16
2014	91-93 GMC "S-15 BILLET GRILL"	$108.16
2025	94 GMC "S-15 BILLET GRILL"	$108.16
2021	94-95 GMC HORIZONTAL BILLET GRILL	$108.16
2022	94-95 GMC VERTICAL BILLET GRILL	$179.59
	"FORD"	
2018	87-91 FORD BILLET GRILL	$140.82
2024	89-94 FORD EXPLORER BILLET GRILL	$112.24
2019	92-95 FORD BILLET GRILL	$140.82
2027	93-95 FORD "RANGER" 2WD. BILLET GRILL	$108.16
2026	93-95 FORD "RANGER" 4WD. BILLET GRILL	$126.53
	"DODGE"	
2023	92-94 DAKOTA BILLET GRILL	$165.31
2029	94-95 DODGE FULL SIZE "BUMPER GRILLS"	$161.22
$108.162028	94-95 DODGE FULL SIZE BILLET GRILL	
	"TOYOTA"	
2031	82-83 TOYOTA BILLET GRILL	$112.24

CHISHOLM ENTERPRISES
"ACCESSORIES"



"BUMPERS"

2012	86 1/2-94 NISSAN PHANTOM BILLET GRILL	$222.45
1983	88-95 BUMPER/BILLET CENTER FOG LIGHT C/O	$508.16
2035	89-95 TOYOTA PHANTOM BILLET GRILL	$222.45
1977	88-95 BUMPER/FRENCHED/ BILLET EACH SIDE	$508.16
2030	88-95 MITSUBISHI PHANTOM BILLET GRILL	$222.45
1979	88-95 BUMPER/FRENCHED/FOG LIGHT CUT OUT	$377.55
1981	88-95 CHEVY BUMPER/ BILLET CENTER	$342.86
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NOTE: All steel bumpers are a raw stamping and require finish body work

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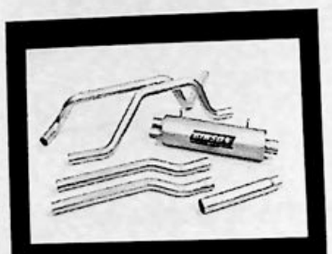
PLUS!



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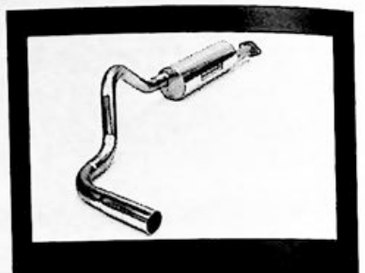

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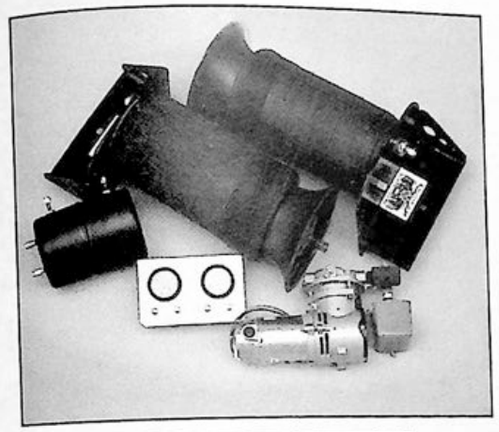

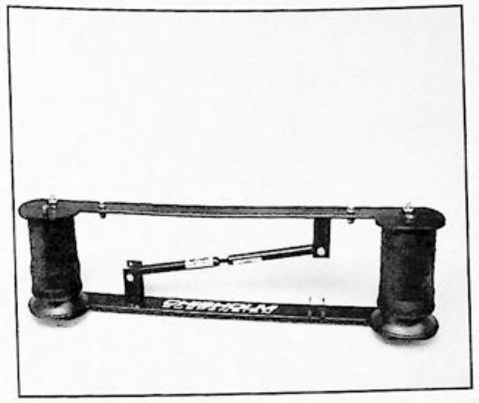

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ENERGY SUSPENSION

GM Polyurethane Transmission Mount With Hyper-Flex

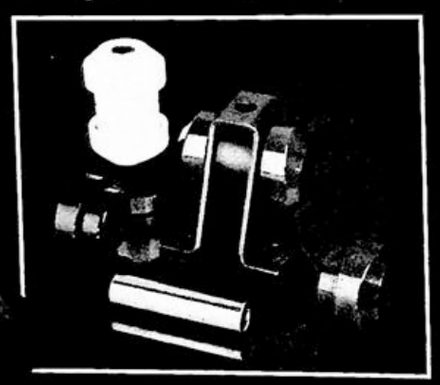
A SNAP TO INSTALL • MADE FROM SUPERIOR MATERIALS • OUT-PERFORMS OEM MOUNT

▲ CHEVROLET 2 WHEEL DRIVE
◀ 4 x 4 TRANSMISSION MOUNT

The original Polyurethane transmission mount. This is the only polyurethane transmission mount that works. Our exclusive patented preload design is another first in the industry. If you have a 2 wheel drive G.M. truck . . . **this is the only polyurethane transmission mount.** Our new replacement transmission mounts for G.M. applications are the best of both worlds. Soft enough for smooth operation on the street, yet strong enough for use at the drag strip, off-road, circle track, etc....They have a unique built in safety locking feature, for added confidence. General Motors has been using this style of mount for over forty years. The mount is used on both automatic and standard, three ,four and five speed transmissions. Some G.M. models had a single stud for mounting to the crossmember. Our new multi fit pattern fits these as well. A simple look at your original mount will suffice for identification.

Four Wheeling subjects the transmission mount to torturous conditions. Energy Suspension has the answer with our **EXTREME DUTY Transmission Mount.** It will be the last mount you buy.

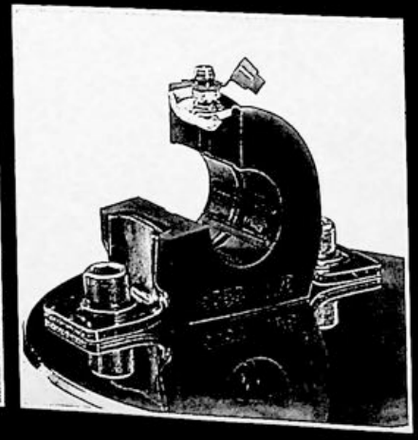
Chrysler Polyurethane Transmission Mount With Hyper-Flex™



FINALLY!!

ENERGY SUSPENSION has re-engineered the Dodge transmission mount using only the highest quality polyurethane. This material is impervious to all under vehicle fluids and contaminants, including transmission fluid, oils, fuel, ozone, road salt, etc. Formulation of this super-tough material is firm enough for huge amounts of H.P., yet soft enough not to transmit vibration. The set includes two bushings with a plated sleeve and is designed to reuse original brackets.

Greaseable Sway Bar Bushings



AWARD WINNING!!

New from Energy Suspension, the Polyurethane Innovators, Greaseable sway bar bushings. Complete with zerk fittings, these new sway bar bushings allow you to perform regular maintenance along with the rest of your suspension. Specially designed inner grooves channel and encapsulate grease to effectively eliminate noise.

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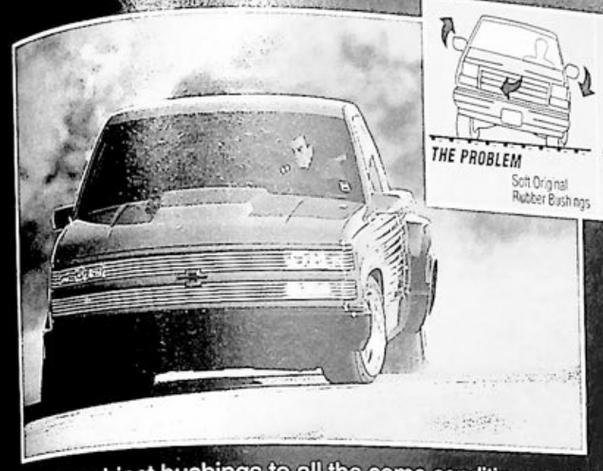
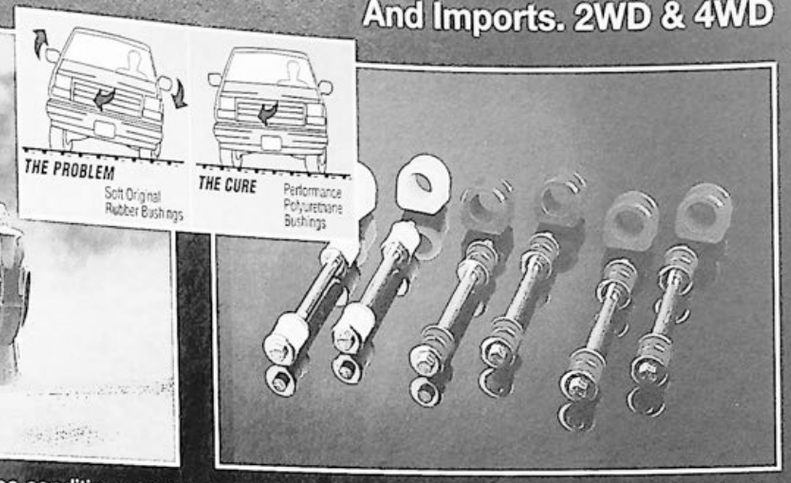
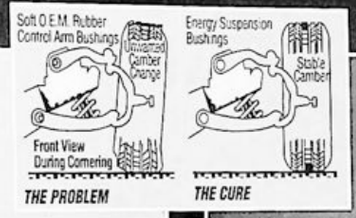
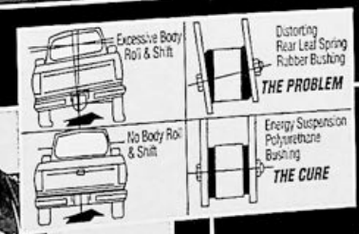
Available For Most Popular Vehicles Including Chevrolet, Ford, Chrysler And Imports. 2WD & 4WD



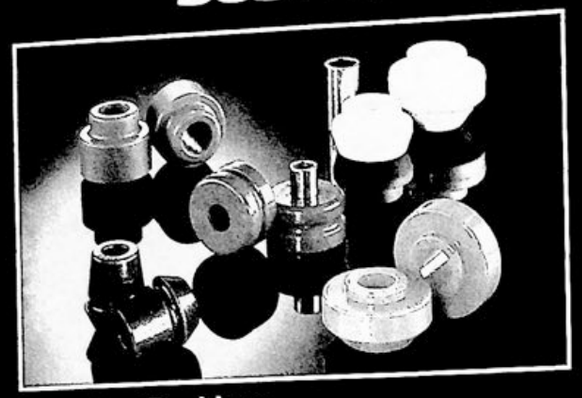


Trucks subject bushings to all the same conditions as passenger vehicles and then some. With increased loads and torturous off-road conditions, soft rubber bushings allow the suspension to deflect until surrounding metal parts force activation. Energy Suspension bushings are full floating and non binding allowing proper weight transfer and full suspension travel. Proper alignment is maintained even when working the truck hard.



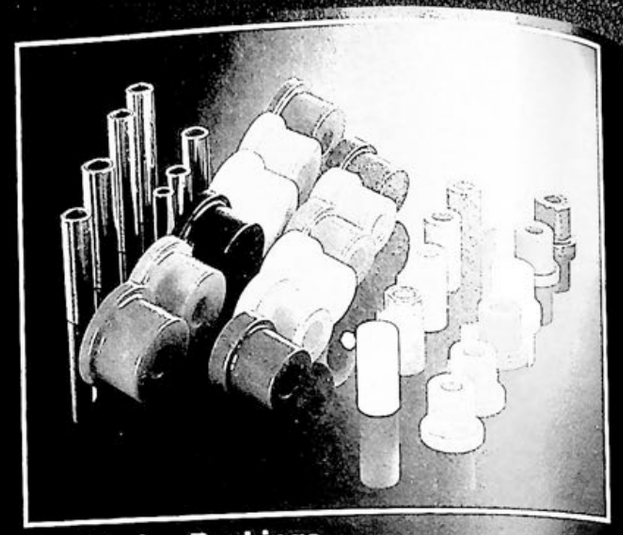


ENERGY SUSPENSION



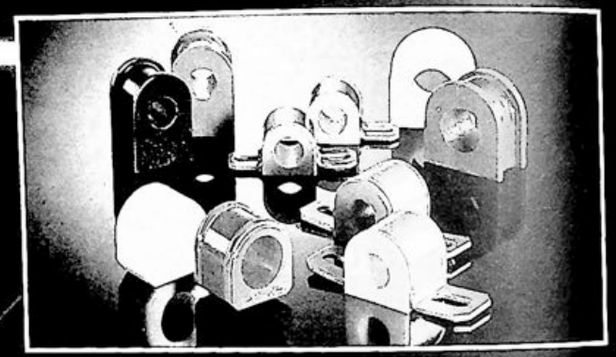
Strut Rod Bushings

Strut rod bushings keep the front wheels and lower control arm assembly from literally rolling under the car when braking. With the increased use of super traction tires, coupled with factory soft rubber bushings, it causes the steering axis slant (caster) to change and cause premature failure of the lower control arm bushing. ENERGY SUSPENSION's polyurethane bushings allow your suspension to travel throughout its full range without binding, yet are firm enough to maintain proper alignment.



Leaf Spring Bushings

Polyurethane leaf spring bushings are the most widely known suspension components in use today by auto manufacturers. The combination of heavy duty leaf springs and polyurethane spring bushings allows the rest of your suspension to function properly and gives drivers that positive feeling on take off, cornering, braking, bumps, and berms.



Sway Bar Bushings

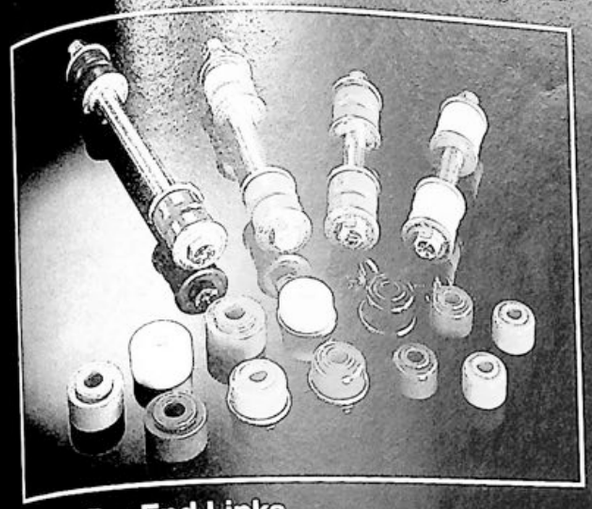
Replacement Tie Rod Dust Boots

At last it is now possible to replace a dust boot without having to buy a new tie rod. These ENERGY SUSPENSION components resist damage from rocks, sand, water, road salt, and oils. Each has an important 5 point sealing action that prevents loss of lubricants and contamination— the major cause of rod wear.

C-Bushings

ENERGY SUSPENSION has engineered the tracking arm, strut arm, and C-bushings to do a specific job. The strut arm (radius rod) bushings are formulated with a softer durometer due to the pivot action required for the suspension travel to work without binding. The C-bushings are a firmer durometer to maintain proper caster alignment at all times. Track rod bushings prevent the entire front end from switching left to right unannounced.

ENERGY SUSPENSION

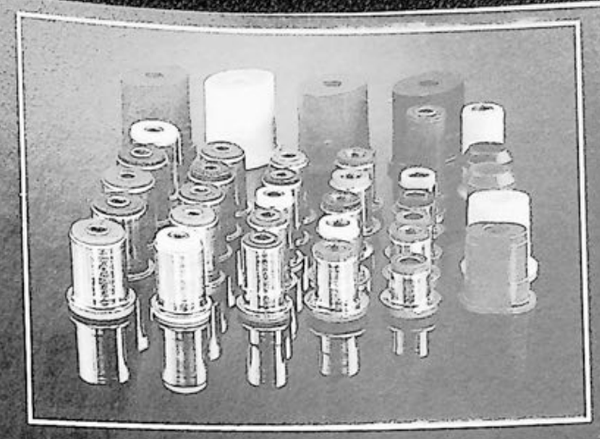


Sway Bar End Links

Economy, increased efficiency, and easy installation are just some of the reasons our products are purchased. Dollar-for-dollar Energy Suspension offers the greatest improvement in performance handling.
All hardware made in the U.S.A. Sets come complete with zinc and gold irradite-plated 3/8" grade 5 bolts, nylon insert lock nuts, heavy gauge washers, and mounting brackets.

Body and Cab Mounts

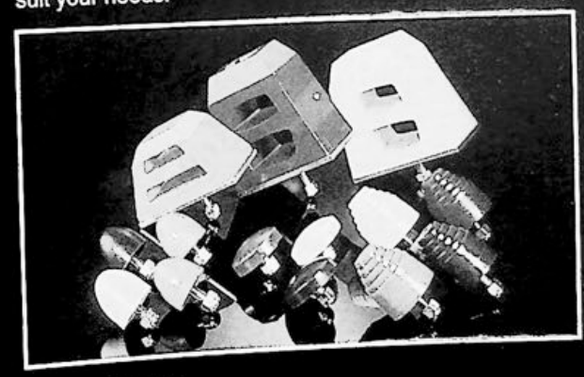
Aluminum body mounts are too harsh for street use and tend to break and cause other parts to break. Original rubber mounts are so soft they crack, distort, and crush so badly they often fall off.
ENERGY SUSPENSION's specially formulated polyurethane cab and body mounts combine the best qualities of both: they're soft enough for a smooth ride, yet rugged enough for the most demanding road or track. Most have a steel ring molded into the end for added durability no matter how harsh the drive, and are available in a variety of colors, and basic black for that "stock" ap



Control Arm Bushings

Front and Rear Suspension

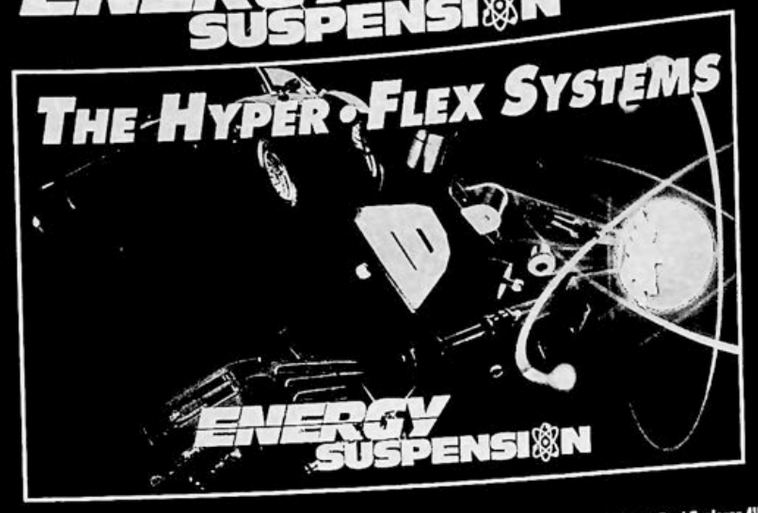
Polyurethane does not rot or deteriorate from oils or atmospheric conditions such as ozone, smog, road salt, chemicals, and other corrosives. That means our bushings will not deteriorate and cause mushy uncertain responses when driving. ENERGY SUSPENSION components make a dramatic improvement in the way your car or truck handles with quick response "whatever your demands."
All bushings are full floating and nonbinding ...especially important when ride height is altered or greater suspension load is required—and proper alignment of caster and camber is maintained by the perfect durometer of the bushing formulation. Rear control arm bushings on GM and Ford four-link systems are a must for controlling wheel hop and increase control on cornering.
Most sets come with plated outer metal shells, are prelubricated with a synthetic compound (with teflon) that inhibits squeaks, and come in a variety of colors to suit your needs.



Bump Stops

Our polyurethane bump stops for control arms, traction bars, and leaf springs are guaranteed to last longer and operate more efficiently than original rubber stops. Each is specially designed for the perfect custom fit. Ou smaller, general purpose bullet shaped snubber is idea for control arms. We have also designed a low profile button head for use when clearance is limited, and our large competition race style stops have a large reinforced metal plate welded to the mounting plate and molded in. The most widely used bump stops on monster trucks.

ENERGY SUSPENSION



Polyurethane Bushing Mastersets

Energy Suspension has just made life a little easier. Energy introduces NEW MASTERSETS for the most popular truck models. Now with one part number you can replace all the major rubber suspension bushings on your truck, bumper-to-bumper. OEM bushings just don't stand up to the demands of your suspension. Energy Suspension polyurethane bushings feature HYPER-FLEX, THE NEW PERFORMANCE TESTED FORMULATION THAT BURIES THE COPYCATS. Don't build inferior quality into your truck. Energy suspension has been manufacturing the best quality polyurethane suspension components for over Twenty years. Ask for quality Energy Suspension Products. If the Atoms not on it, The Quality's not in it.

1988-95 Chevrolet/GMC 1/2 ton 3/4 ton Pickup 4WD Front Control Arm, Front Sway bar, Rear Spring and Shackle, Body Mounts, Tie-Rod End Boots.	3-18101
1981-87 Chevrolet/GMC 4WD 1/2 ton 3/4 ton Pickup (With Stock Front Springs)	3-18102
1981-87 Chevrolet/GMC 4WD 1/2 ton 3/4 ton Pickup (With Aftermarket Springs)	3-18103
1973-80 Chevrolet/GMC 4WD 1/2 ton 3/4 ton Pickup (With Stock Front Springs)	3-18104
1973-80 Chevrolet/GMC 4WD 1/2 ton 3/4 ton Pickup (With Aftermarket Springs) Front and Rear Spring and Shackle, Front Sway Bar, Body Mounts, Tie-Rod End Boots.	3-18105
1988-95 Chevrolet/GMC 2WD 1/2 ton Pickup 1981-87 Chevrolet/GMC 2WD 1/2 ton Pickup 1973-80 Chevrolet/GMC 2WD 1/2 ton Pickup Front Control Arm, Front Sway Bar, Rear Spring and Shackle, Body Mounts Tie-Rod End Boots.	3-18107 3-18108 3-18109
1982-93 Chevrolet S-10 Pickup 2WD Front Control Arm, Rear Leaf Spring, Front Sway Bar, Body Mounts, Tie-Rod End Boots.	3-18106
1972-93 Dodge Ramcharger 4WD 1972-85 Dodge 1/2 ton 3/4 ton Standard and Extracab Pickup 4WD Front and Rear Spring and Shackle, Front sway bar, Body Mounts, Tie-Rod End Boots.	5-18101 5-18102
1966-77 Bronco (2 Degree C-Bushing) 1966-77 Bronco (4 Degree C-Bushing) 1973-79 Ford F150 Pickup 4WD (2 Degree C-Bushing) 1973-79 Ford F150 Pickup 4WD (4 Degree C-Bushing) C-Bushings, Radius Arm, Track Arm, Rear Spring and Shackle, Body Mounts, Tie-Rod End Boots. (Early Bronco Kit includes Hardware)	4-18104 4-18105 4-18106 4-18107
1980-92 Ford F150 Standard and Extracab Pickup 4WD 1986-92 Ranger Standard and Extracab Pickup 4WD Radius Arm, Axle Pivots, Rear Spring and Shackle, Body Mounts, Tie-Rod End Boots.	4-18101 4-18103
1991-94 Ford Explorer 4WD Radius Arm, Axle Pivots, Rear Spring and Shackle, Front and Rear Sway Bar, Tie-Rod End Boots.	4-18102
1987-95 Jeep Wrangler Front and Rear Spring and Shackle, Front Sway Bar, Front and Rear Track Rod, Body Mounts, Tie-Rod End Boots.	2-18101
1976-79 Jeep CJ5/7 1980-86 Jeep CJ5/7 Front and Rear Spring and Shackle, Front Sway Bar, Body Mounts, Transmission Torque Arm Bushings, Tie-Rod End Boots.	2-18103 2-18102
1955-75 Jeep CJ5/7 Front and Rear Spring and Shackle, Body Mounts, Tie-Rod End Boots.	2-18104
1984-94 Jeep Cherokee 4WD Front Control Arm, Rear Spring and Shackle, Front Track Rod, Tie-Rod End Boots.	2-18105
1989-94 Toyota Standard and Extracab Pickup 4WD Front Control Arm Bushings, Rear Spring and Shackle, Front Sway Bar, Tie-Rod End Boots.	8-18101
1979-85 Toyota Standard and Extracab Pickup 4WD Front and Rear Spring and Shackle, Front Sway Bar, Torque Arm, Body Mounts, Tie-Rod End Boots.	8-18102
1990-95 4 Runner 2WD & 4WD Front Control Arm, Rear Control Arm Bushing , Track Arm, Front and Rear Sway Bar, Tie-Rod End Boots.	8-18103

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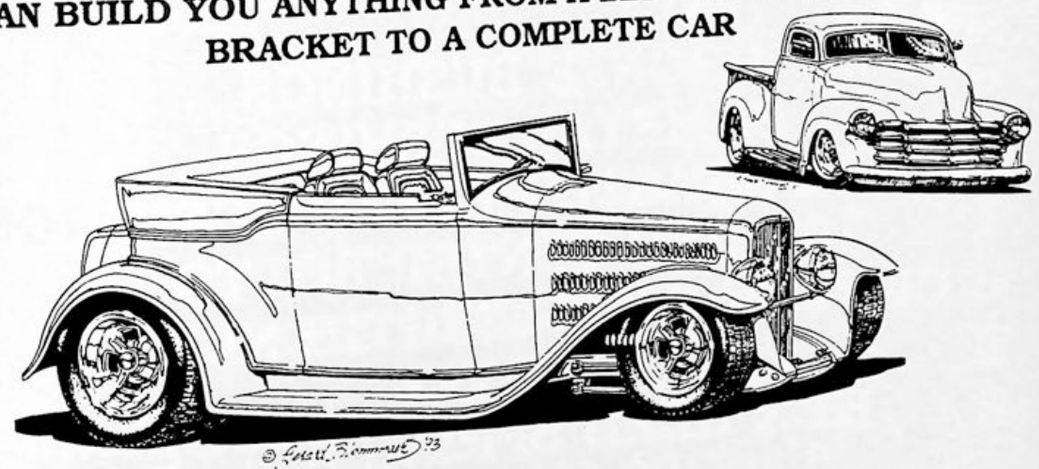

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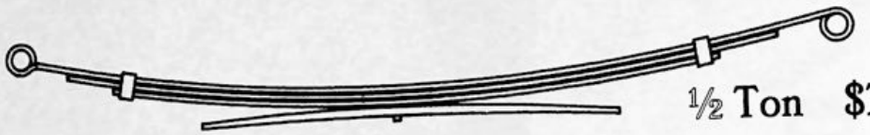

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DATE _____

QTY	PART #	ITEM DESCRIPTION	UNIT PRICE	AMOUNT
			SUB TOTAL	
			(California Residents Only) STATE TAX	
			(Call Chisholm for) SHIPPING	
			TOTAL	

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YEAR _____
MAKE _____
MODEL _____
ENGINE _____ SB OR BB _____
BRAKES DRUM _____ DISC _____
SPRINGS FRONT _____
COIL _____ LEAF _____
REAR
COIL _____ LEAF _____

LEAF SPRING MEASUREMENTS:
EYE TO EYE _____
CENTERBOLT TO FRONT EYE _____
CENTERBOLT TO REAR EYE _____
FREE ARCH _____ # OF LEAFS _____
WIDTH OF LEAF _____

*FORD HAS A CODE # ON THE INSIDE DRIVER DOOR _____

SOLD TO:

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Address _____
City _____
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Telephone ____ • ____ – _____

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Name _____
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Warranty

Chisholm Enterprises

10051 Greanleaf Avenue, Santa Fe Springs, California 90670

THE CHISHOLM SUSPENSION GUARANTEE:

Limited Warranty Statement;

Chisholm Enterprises will replace any CHISHOLM suspension part, control arm, coil spring, leaf spring, or shock found to be defective in material or workmanship for a period of (5) years, unless the parts were delivered with a written warranty, the terms of which are longer: then the longer warranty applies All other terms remain the same. The above product only. For a warranty to be valid, applicable information must be in the possession of Chisholm Enterprises. The information must include date of purchase, or installation, name and address or f purchaser, parts covered, and make, model, and mileage of the vehicle to which the warranty applies. These warranties are void if the product is improperly installed on a vehicle that has been modified or used for commercial, racing or f road purposes. Chisholm Enterprises will not be responsible for any damage or loss caused by ays, failure, or any consequential damage arising from any cause whatsoever, nor for labor, nsportation, or any other charges incurred in the replacement or repair of a defective part.

REMEDY:

TO MAKE A CLAIM UNDER THIS WARRANTY, THE DEFECTIVE PART MUST BE RETURNED AT YOUR EXPENSE, TO THE DEALER FROM WHOM THE PRODUCT WAS PURCHASED WITH THE ORIGINAL INVOICE.

EXCLUSIONS AND LIMITATIONS OF LIABILITY:

No other Warranty, expressed or implied shall apply. Including any implied warranty of merchantability or of fitness for a particular purpose, and any such implied warranties are expressly disclaimed. In the event that applicable law prevents disclaimer of any implied warranties, the the implied warranties of merchantability and fitness for a particular purpose shall be expressly limited do a term of one year from the date of purchase. Under no circumstances shall CHISHOLM ENTERPRISES be liable to the purchaser, or any other person, for any special incidental or consequential damages, whether arising out to breach of warranty, breach of contract or otherwise

Some states do not allow limitations on how long an implied warranty may last to allow the exclusion or limitation of consequential damages. So the above limitations or exclusions may not apply to you This warranty gives you specific legal rights, and you may have other rights which may from state to state

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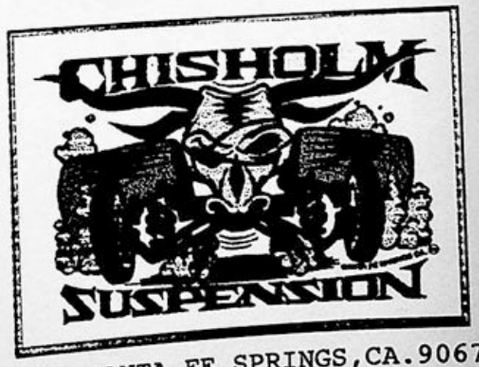

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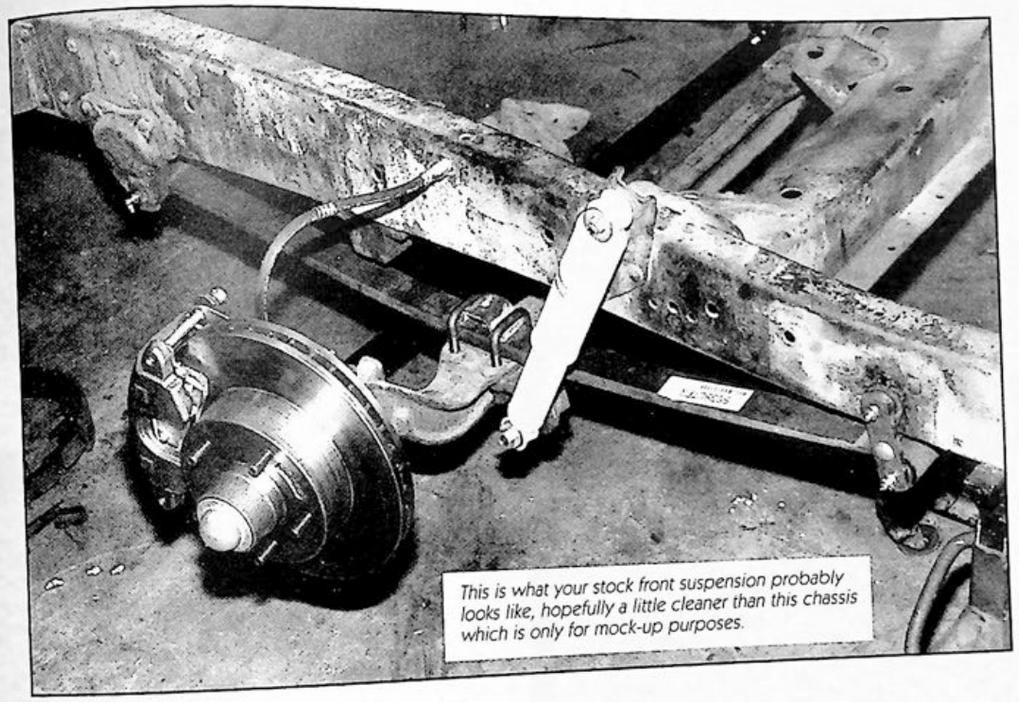
THE SINGLE LIFE

A mono-leaf for classic Fords and Chevys will provide you with improved ride and a lowered stance



This is what your stock front suspension probably looks like, hopefully a little cleaner than this chassis which is only for mock-up purposes.

BY BRIAN McCORMICK

PHOTOGRAPHY: BRIAN McCORMICK

The market of custom suspension components for classic trucks is constantly expanding with new and innovative products that provide a wide variety of options for the consumer. Many of these high-tech parts and kits come from Golden State Pickup Parts and Classic Performance Products, companies which specialize in the classic aftermarket.

A new addition to their huge line of suspension options is a relatively simple component that meets the standards of both the restoration enthusiast and the vivid customizer. Since many folks opt not to install some kind of an independent front suspension on their 1947-'59 Chevy and 1948-'60 Ford pickups, lowering and improving handling and ride become a stiff situation to deal with.

Well, to make a long story short, Golden State and Classic Performance Products now offer a mono leaf spring for the previously mentioned truck models which provides up to a three-inch drop for Chevys, and as much as a five-inch drop for the Fords.

The new mono-leafs offer the same spring rate as the stock spring packs with an identical taper design to keep geometry correct and installation very easy. Further benefits of the mono-leaf spring include a greatly improved ride due to the lack of friction commonly associated with multiple leaf spring packs and improved handling initiated by the lowering of the center gravity.

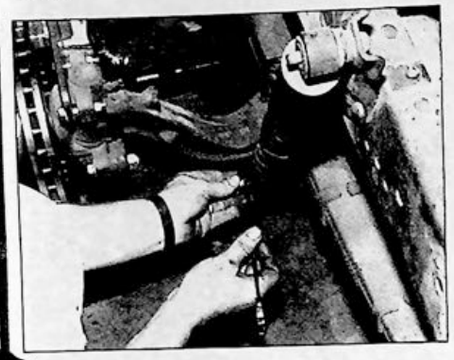
Just one of the features you will notice about this new mono leaf is the reversed eyes from an upward curl to a downward curl which constitutes much of the desired suspension drop. The kit also comes with replacement bushings, zerk fittings and seals to rebuild your spring hangers, something most trucks of this classic age will obviously require.

Along with mono-leafs for the front suspension, Classic Performance Products and Golden State also have a mono-leaf spring kit for the rear which provides the same features and function as the front. Those who want to go all out can install mono-leafs in both the front and rear to achieve a lowered stance while retaining their stock style suspension.

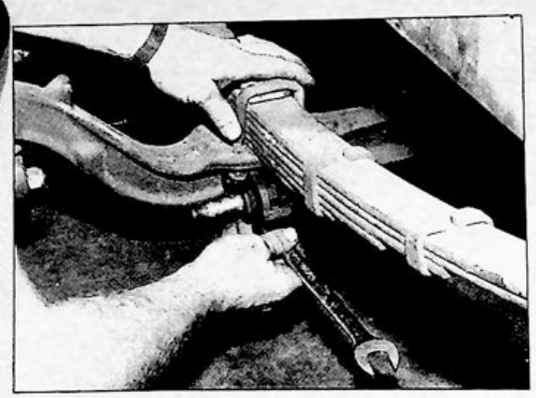
If you think that the mono-leaf spring suspension is just what you have been looking for, then follow along as we show you how to install the mono-leaf on a 1955 Chevy front suspension. Remember, both Ford and Chevy truck fans have the new mono-leaf option.

Since Golden State Pickup Parts is strictly a classic GM parts manufacturer, only the Chevy kits are available through them, with Classic Performance Products including classic Ford mono-leaf to their line. →

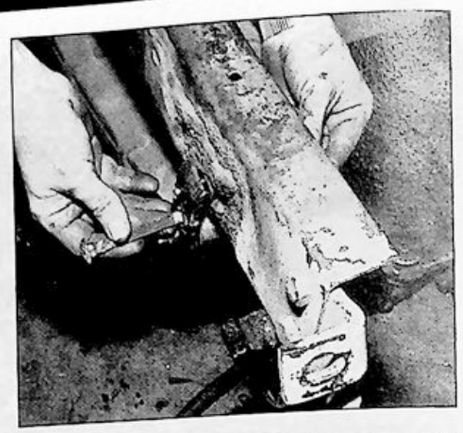
Assuming that you have properly jacked-up your truck and supported it with sturdy stands, begin the disassembly by first removing the stock shocks.



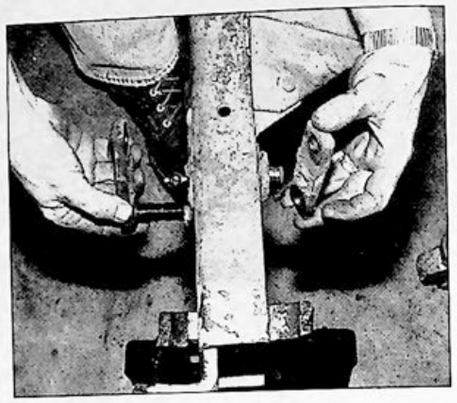
Unbolt the stock U-bolts which hold the spring pack and shock bracket in place. You won't use the stock U-bolts with the new mono-leaf spring, but you will re-install the shock bracket.



Leaf spring removal begins by unbolting and removing the center bolt that holds the hangers together.

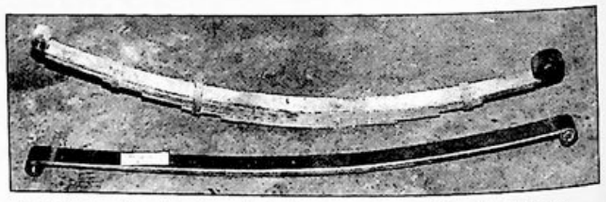


With the leaf spring pack supported from underneath and the eye-bolt nuts removed, the spring hangers can be removed as shown.

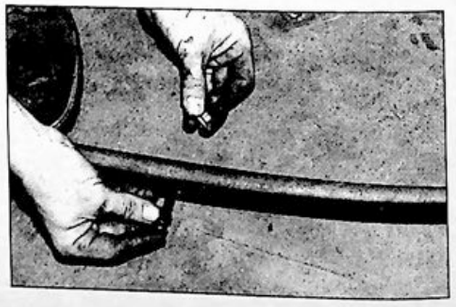


The rear spring hangers are stationary and use only one eye-bolt which leaves the hanger mounted to the frame.

You can easily see the difference in spring arch between the stock leaf spring pack and the new mono-leaf. Comparing the two versions also reveals the obvious three-inch drop and reversed eyes.

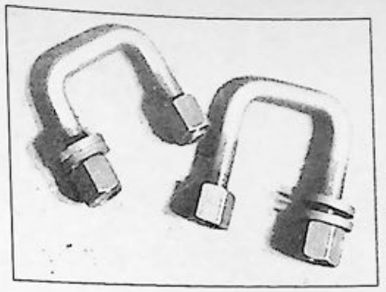


A shorter locator pin is required with the mono-leaf and should be installed before the mono-leaf is installed on the truck.



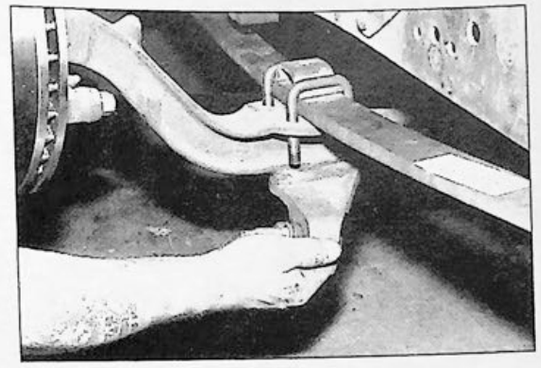
If your threaded hanger frame bolts are dirty or greasy, be sure to clean them up before you install the new bushings.

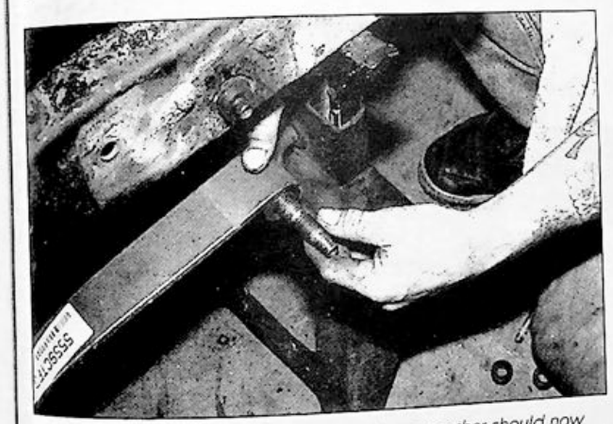
The hanger bushings will simply slide over the hanger bolt, one on each side.



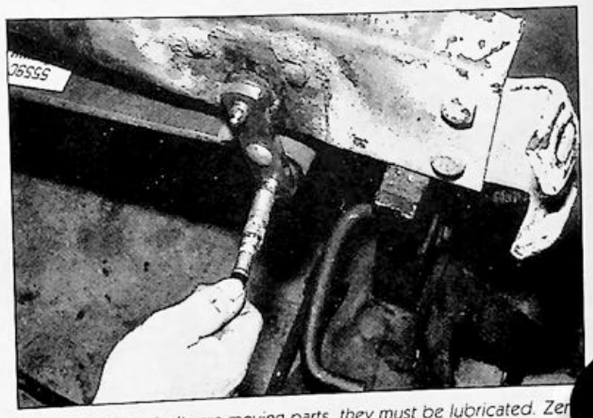
Just like the stock design, the U-bolts slide over the mono-leaf, with the stock shock bracket attaching to the front bolts.

Reinstall the stock lower eye-bolt through the mono-leaf eye and install the new bushings onto both sides of the bolt.





The center bolt which holds the hanger pieces together should now be installed and tightened to specs. The same method is used to reassemble the rear hanger.



Since the hanger bolts are moving parts, they must be lubricated. Zer fittings are installed into the ends of each bolt to make greasing easy. Use a grease gun and a quality lubricant grease to finish the mono-leaf installation.

The Golden State Pickup Parts/Classic Performance Products mono-leaf spring kit comes with new U-bolts that are shorter to accommodate the single leaf design.

Since you are upgrading your suspension, it only change your old shocks using a gas-charged shoc

SLAM DANCE

The Chop Shop constructs a fully adjustable 4-wheel air ride system

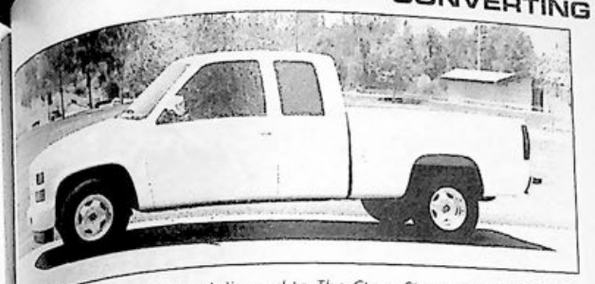
BY COURTNEY HALOWELL
PHOTOGRAPHY: THE CHOP SHOP

In a sport that seems to worship the thought of hurtling down the highway at an extremely low altitude, it's no big secret that adjustable suspension systems can come in real handy. The fact is, anyone who drives a slammed truck and has attempted to traverse a driveway (one that looks to a slammed truck more like Mt. Everest than what it actually is: the entrance to the grocery store) has, at about the time when the entire weight of their truck is resting on the transmission crossmember, contemplated some sort of adjustable suspension.

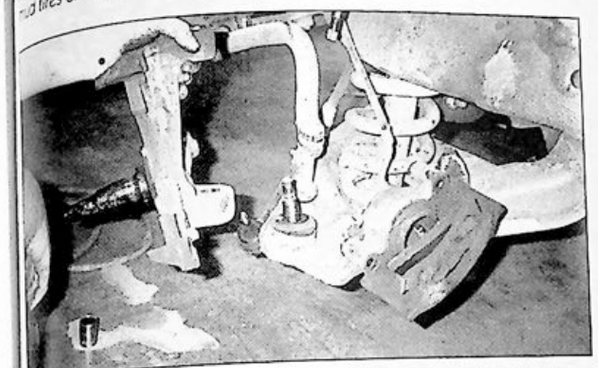
And if you are going to go to the extreme of putting some sort of adjustable suspension on your ride, you may as well ensure that it'll go as low as possible while still giving enough lift to satisfy even the pickiest state trooper. Not to mention the fact that there's a mean ol' driveway out there just waiting to mangle your chassis. So, you explore what seems to be the only option — hydraulics. Well, that isn't necessarily the whole truth. There is another option— air suspension. Though it's a bit more complex than slapping a set of air shocks on the corners of your Bowtie hauler, you'll agree that the end result is worth the extra effort.

The crew over at The Chop Shop decided it was time to create a suspension system that would utilize air bags to lift and lower a vehicle. The system was created with help from the air bag experts up at Air Flex Suspension Systems. And the conversion process includes tossing the factory coils and rear leafs into the scrap heap and installing a set of Firestone Air Springs. To accomplish this feat, the front shocks have to be relocated and the upper spring cup has to be modified to give the Air Springs ample clearance. To aid in getting the front end down as far as possible, a set of Bullet Suspension drop spindles were also installed. Around back, all of the leaf spring hangers are removed and a Total Cost Involved Engineering parallel 4-link kit is installed with a panhard rod and a monster C-notch before the custom Air Spring mounts are zapped into place. These components combined with one of Firestone's on-board air compressors and control panels give the driver complete control of the ride height at the touch of a button.

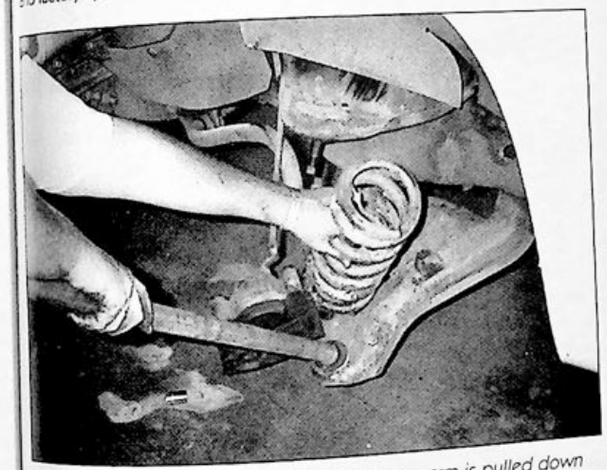
CONVERTING THE FRONT



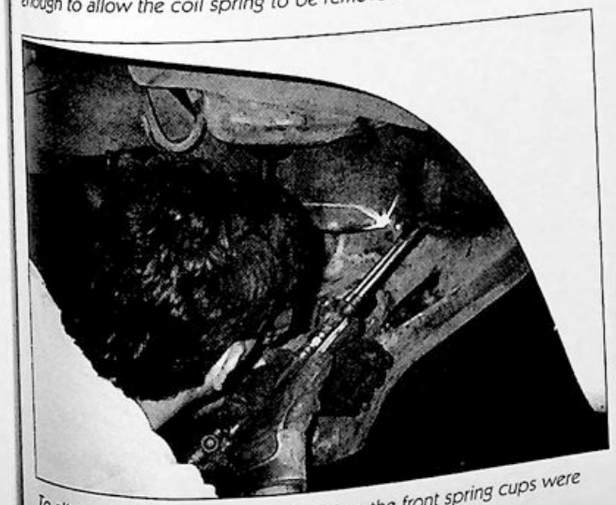
...e's how the truck was delivered to The Chop Shop, complete with ...d tires and helper springs.



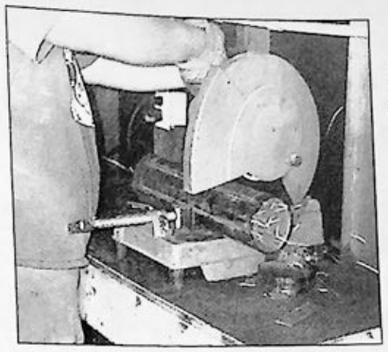
The entire process starts with the removal of the hub, rotor, caliper and factory spindle



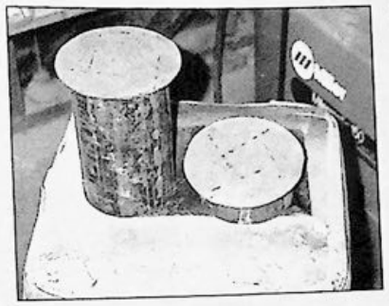
The sway bar link is disconnected and the lower arm is pulled down enough to allow the coil spring to be removed.



To allow enough room for the air spring, the front spring cups were trimmed as necessary.



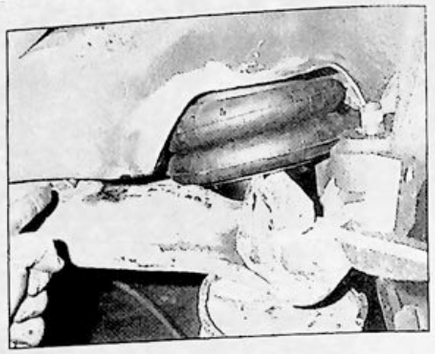
A couple measurements are taken to determine the length and proper angle that the air spring mounts need to be once the drop spindles are installed. Getting the length of the mounts is pretty important, because if they are too long they won't allow the truck to go down all the way. And if they are too short, they won't give the truck the maximum lift.



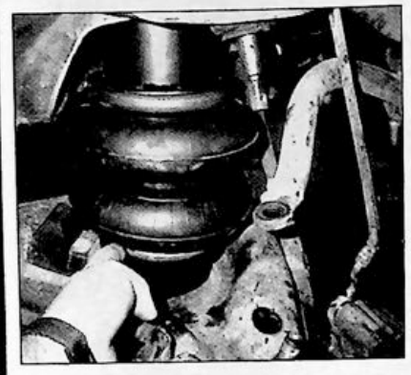
The circular mounting pads for the air spring... to the tubing spacers. Once everything is st... proper holes are drilled to mount the spacer... air springs.

CONVERTING THE FRONT (CONT.)

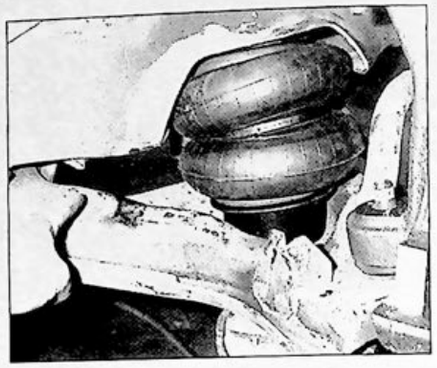
Once the mounts have been cleaned up and painted, they are attached to the air springs along with the air line.



Once the Bullet spindle is in place, the suspension is compressed with no air in the springs, then air is added to test the amount of lift the front suspension will receive



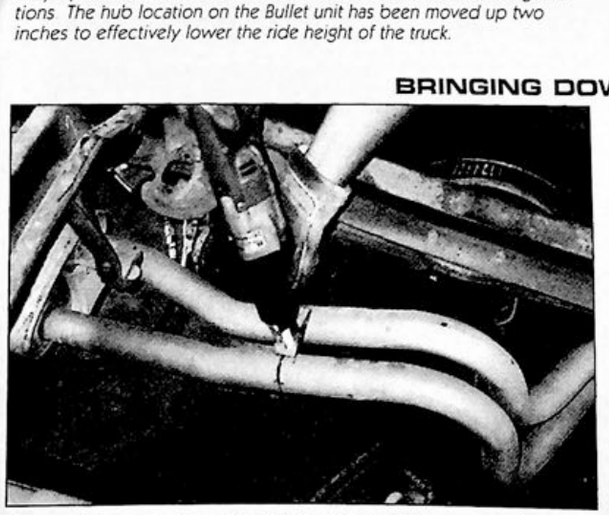
The entire air spring assembly is then slipped in between the modified upper coil cup and the lower control arm



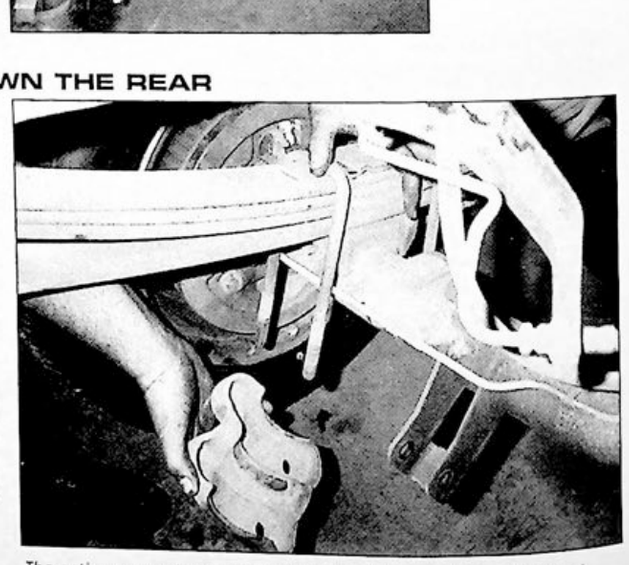
Here, the factory spindle is set out next to the new Bullet Suspension drop spindle to show the difference between the hub mounting locations. The hub location on the Bullet unit has been moved up two inches to effectively lower the ride height of the truck.

Since the factory shock location couldn't be utilized with the addition of the air spring, a custom shock mount had to be constructed behind the lower control arm

BRINGING DOWN THE REAR

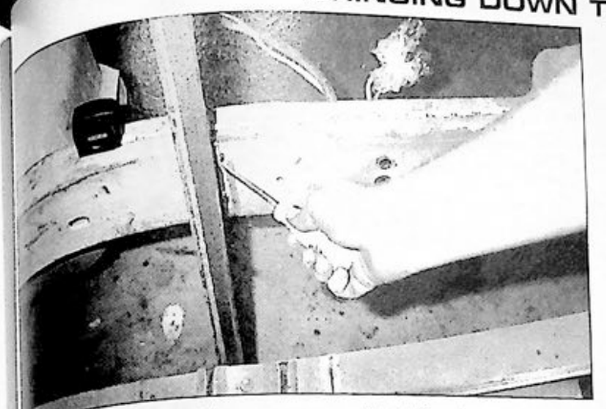


Because the rear axle is going to have the ability to move well up into the frame rails, the exhaust was trimmed off in front of the axle and a pair of turn-downs were welded on.

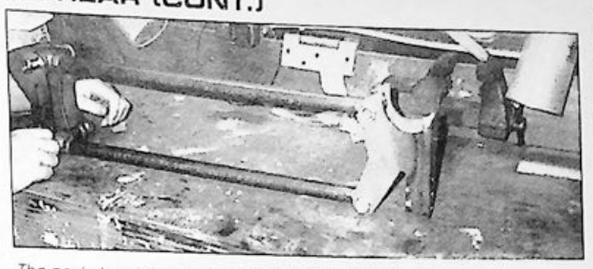


The entire rear end was then unbolted and removed from the truck.

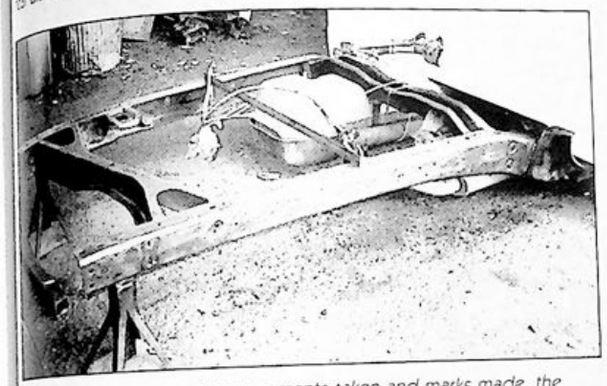
BRINGING DOWN THE REAR (CONT.)



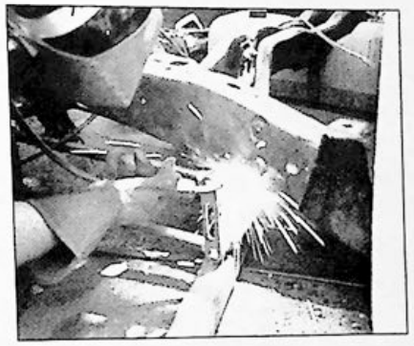
Before the leaf springs and hangers were pulled off and tossed on the scrap heap, the centering bolt was used to mark the position of the rear axle on the frame rails.



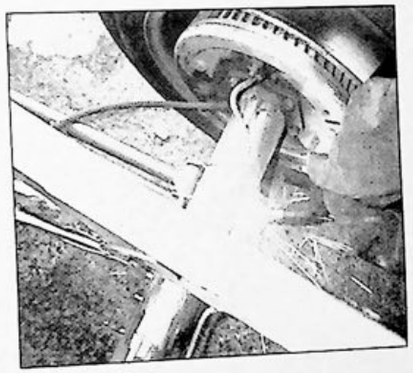
The next step is to reattach the rear end to the truck. That task is going to be taken care of with a Total Cost Involved Engineering parallel 4-link kit. The kit comes with everything needed to rid the rear of the truck of leaf springs forever.

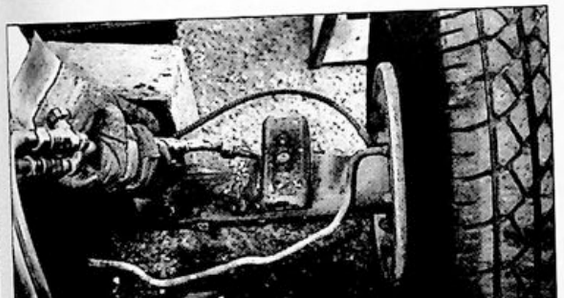


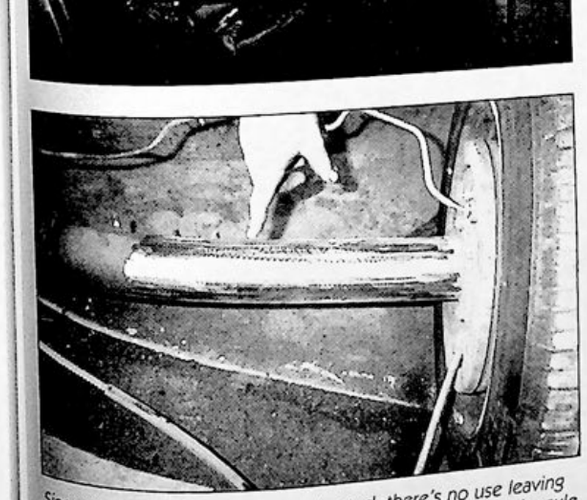
With all of the necessary measurements taken and marks made, the frame was stripped of all unnecessary brackets and scrubbed down



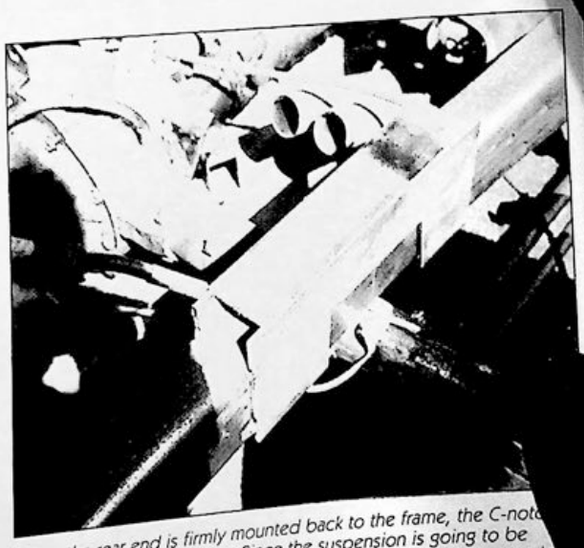
With the rear end clamped in place, the front and rear 4-link brackets are welded into place.



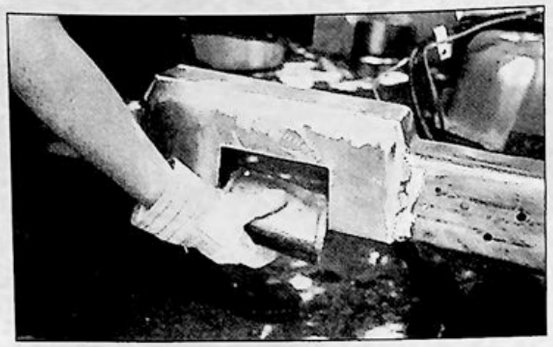




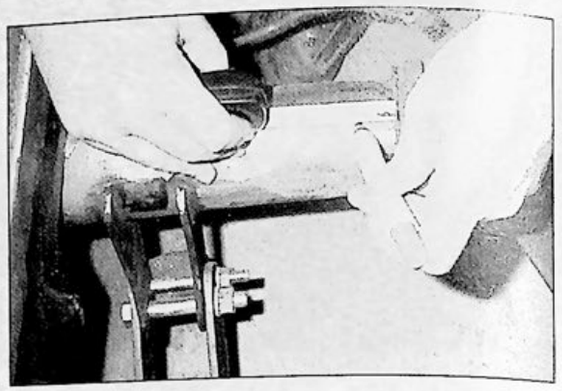
Since the leaf springs have been tossed, there's no use leaving the spring pads on the rear end, so they are cut off and the axle tube is ground smooth.

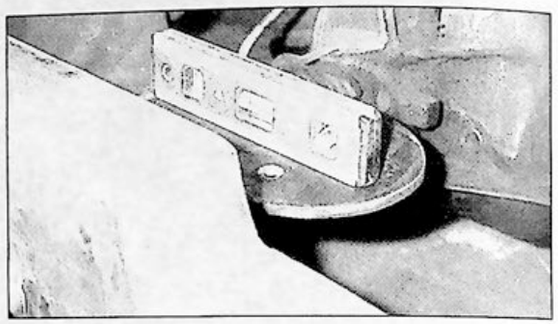


Once the rear end is firmly mounted back to the frame, the C-notc of the frame rails can begin. Since the suspension is going to be adjustable, the notch is made pretty large so the truck can get as lo as possible.

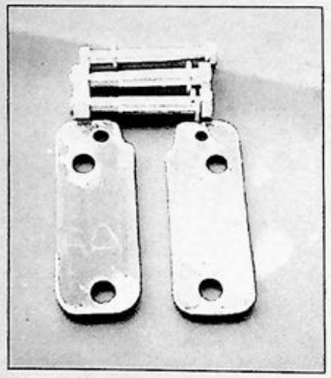


As soon as all the outer plates are welded up, the frame section is cut out of the center and boxed up as well.

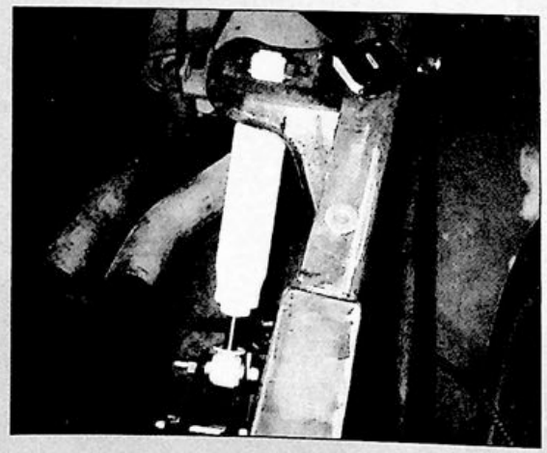


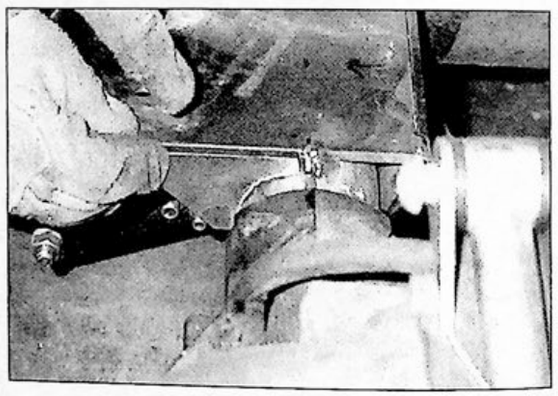


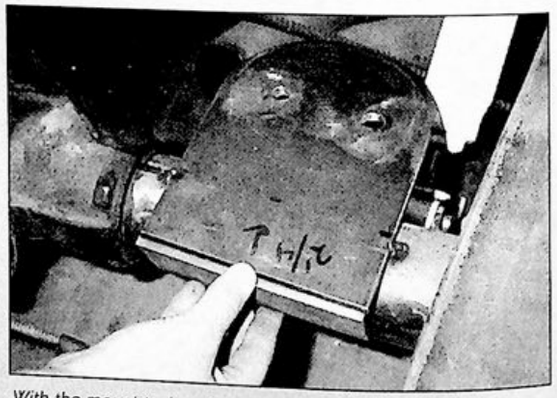
Measurements are taken to find the position of the lower air spring mounts on the rear end housing. Once this has been determined the lower plate is tack welded into place



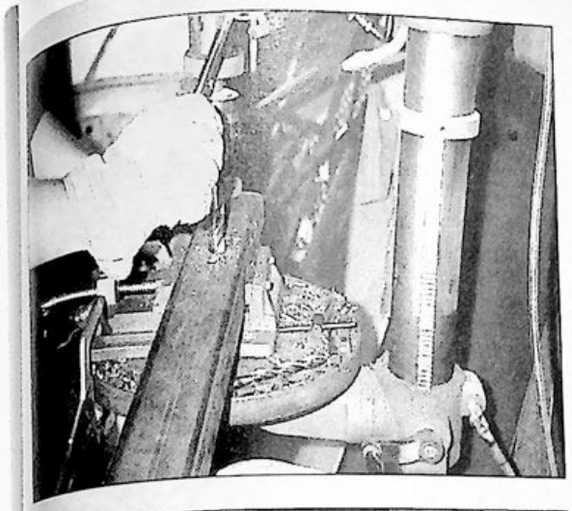
The next step is to put the new shocks and shock extenders into place

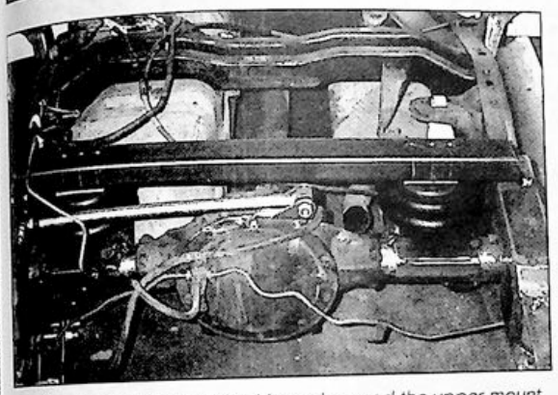




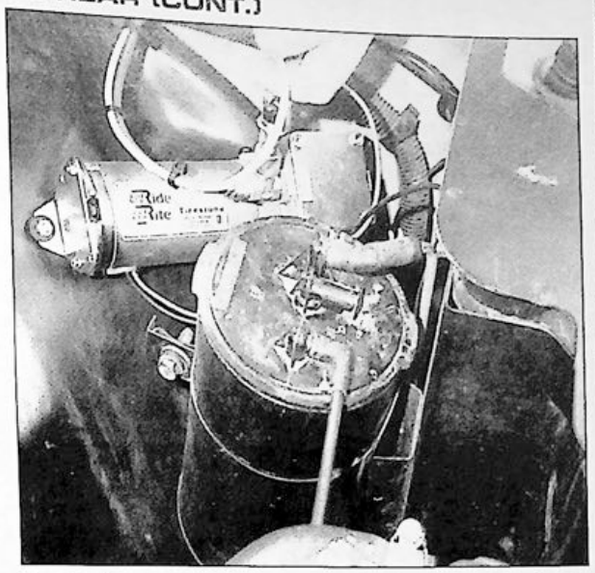


With the mount tack welded into place, the front and rear gussets are fitted and welded into position.

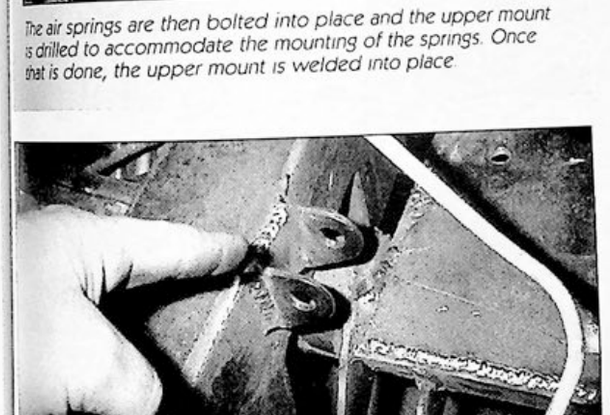




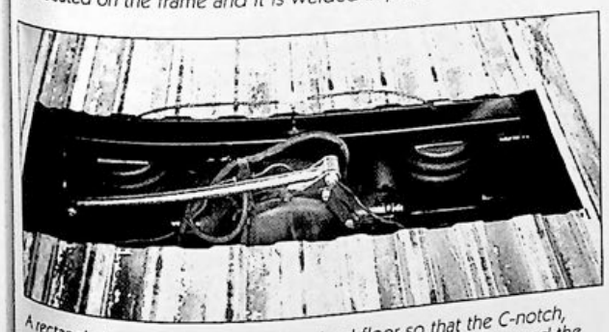
The air springs are then bolted into place and the upper mount is drilled to accommodate the mounting of the springs. Once that is done, the upper mount is welded into place.



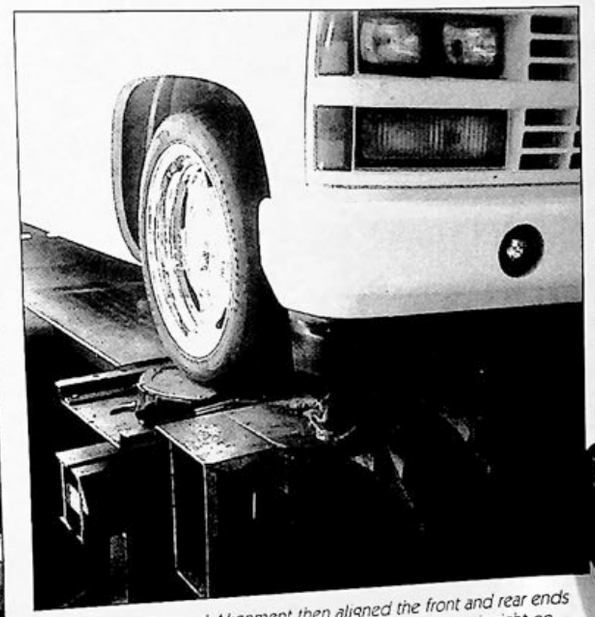
The 12-volt compressor is compact enough to be mounted just about anywhere. In this case, it is mounted to the inner fender panel and the controls are mounted under the dash to give the driver control of the ride height at the touch of a button.



To sew up the rear suspension, the position of the panhard rod bracket is located on the frame and it is welded in place.



A rectangle had to be cut out of the bed floor so that the C-notch, panhard rod and upper air spring crossmember would clear and the bed could be bolted back to the frame.



Rick's Mr. Muffler and Alignment then aligned the front and rear ends with the truck set at ride height. That way, the alignment is right on when the air springs are pumped up and the tires wear evenly.

With everything put together all that's left to do is roll into show or cruise spot, let the air springs down and watch jaw

'63-87 TUBULAR GRAND SLAM

Classic Performance Products introduces a killer new lowering system for '63-87 Chevy and GMC trucks

Performance Products '63-87 Chevy general lowering kit includes a set of custom made tubular control arms with polyurethane bushings and ball joints installed, lowered coil springs if you want a real low stance, lowered shocks, and a rear suspension lowering setup comprised of either dropped springs and lowering blocks or lowered leaf springs. The addition of a high-quality sway bar is optional.

RIAN McCORMICK
OGRAPHY: BRIAN McCORMICK

The process and application of lowering a truck's suspension has greatly increased in the form of better engineered components that optimize ride and performance to OEM specifications while upgrading the overall quality of the product. Thanks to public demand and manufacturer concern, we are now in an era that features suspension components as an industry leader in aftermarket product development.

To date, we have seen many forms of lowering technologies like dropped spindles, lowered I-beams, shortened coils, de-arched leaf springs, air bags, and a host of other trick items, most of them determined by the application involved. But, one of the hottest developments currently capturing the attention of the truck market is the innovation of tubular control arms that have been engineered to provide a lowered stance with proper geometry.

Sounds great, right? Now let's take the process one step further and consider those trucks that were originally equipped with drum front brakes like the '63-70 Chevy versions. Lowered coil springs or reworked A-arms were the only option these truck owners had to get their rides down to earth without performing a costly disc brake conversion.

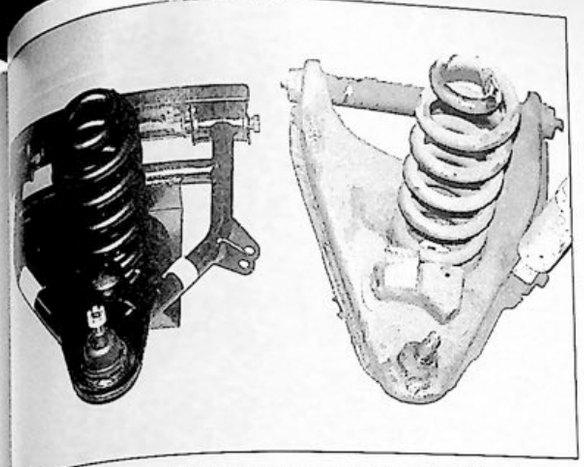
Enter Classic Performance Products! Jim Ries, owner of CPP has recently developed a high-quality tubular lower control arm that will allow front drum brake truck owners to lower their suspension while maintaining a smooth ride and proper performance geometry without having to switch over to disc brakes. These control arms are the only arms that have this capability. Even better, these same tubular control arms will also fit Chevy and GMC trucks up to 1987, in half, three-quarter and one-ton models with or without drum brakes.

That's not all, the general lowering kit also includes a set of lowered coil springs that will complete a four-inch drop in the front with matching lowered coil springs or leafs for the rear. Since the early trucks have a trailing arm rear suspension, the installation of lowered coil springs and trick blocks will bring the rear of your truck down nicely. Or, if your truck has a leaf spring suspension, CPP has a five-leaf pack and a seven-leaf pack, meeting your needs to lower the suspension five inches.

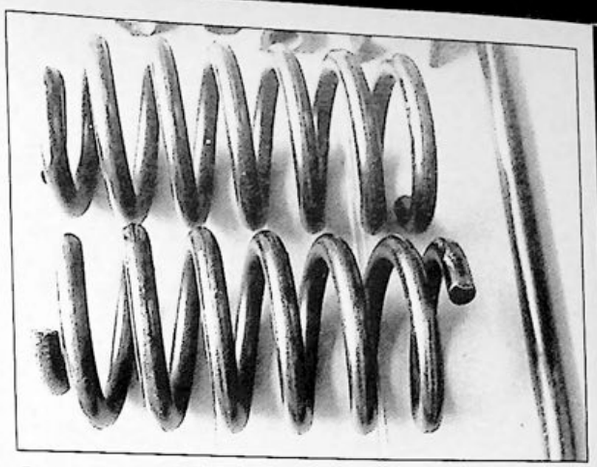
By now you are saying to yourself that this is definitely a killer setup, but there's more! Each tubular control arm comes complete with greaseable polyurethane bushings and ball joints already pressed in as well as the necessary grade eight hardware. Then, believe it or not, CPP also decided that top quality shocks would make this lowering kit the talk of the town. Bell Tech Nitro-Drop lowered shocks work great with the kit in providing a smooth ride.

Last but not least, if you decide that you want to go for it all, CPP also as a sway bar kit for '63-87 Chevy trucks that works well with the new control arms while keeping your truck on the right track.

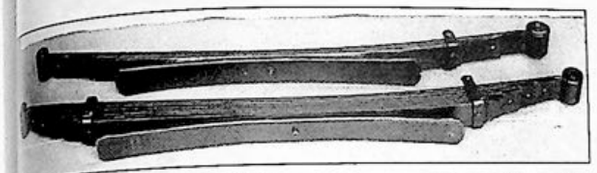
Okay, Chevy truck fans, the time has come to step-up and do the right thing! This kit is a mark of quality design and construction that is second to none and gets the job done right within stock geometry parameters. If you're interested, follow along as Classic Performance Products installs a set of their new tubular control arms on a '60s Chevy truck and you will see how incredibly easy the installation is, besides how much better your truck will look.



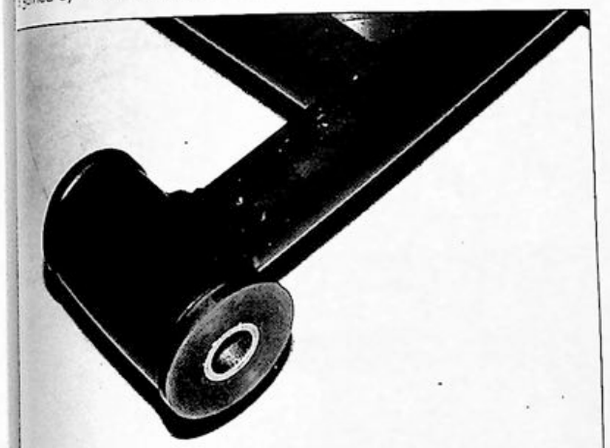
Before we begin the installation, you can gain a better feel for the products when the new '63-87 Chevy tubular control arm and spring is compared with the stock version.



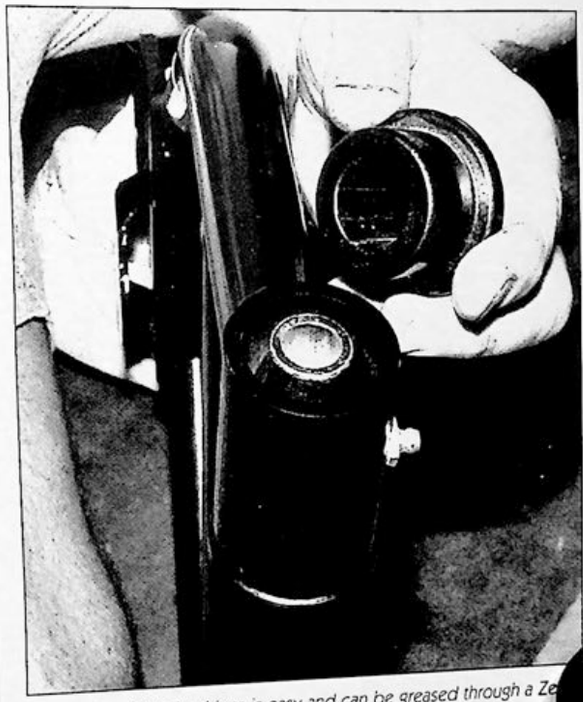
To gain a four-inch drop with the new control arm, Classic Performance Products will include a set of lowered coil springs upon request.



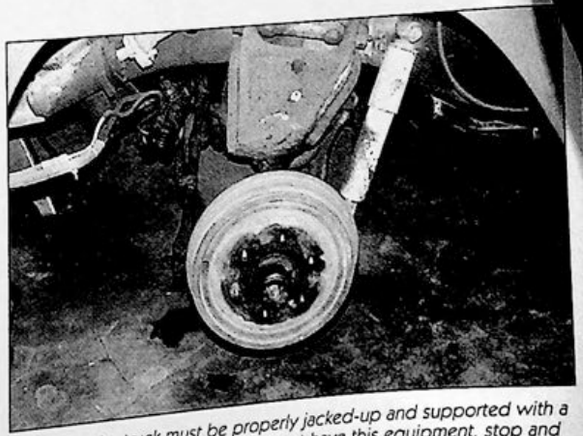
To lower the rear of your '73-87 Chevy, CPP has manufactured two different lowered leaf spring packs to get the job done. A four-inch drop is gained by installing these leaf packs.



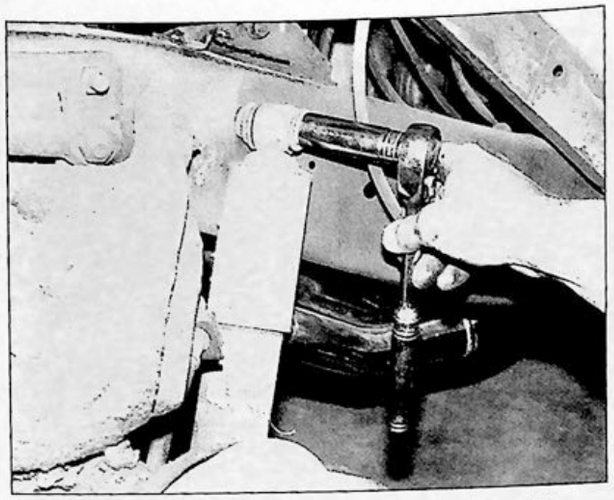
For optimum results in suspension function, all bushings are greaseable polyurethane, a convenience that stock features don't have.



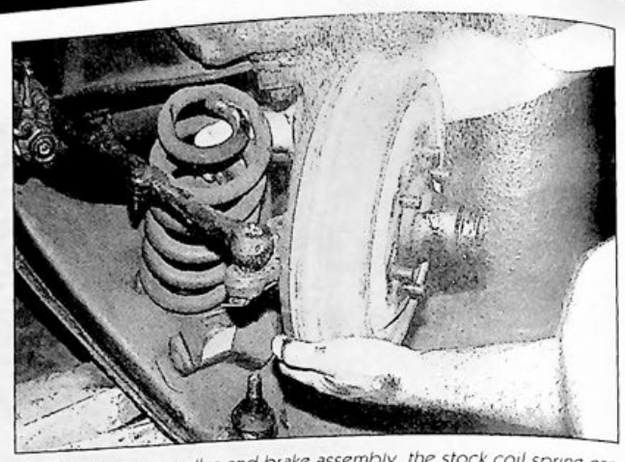
Installation of the bushings is easy and can be greased through a Ze fitting pre-installed on each end of the control arm.



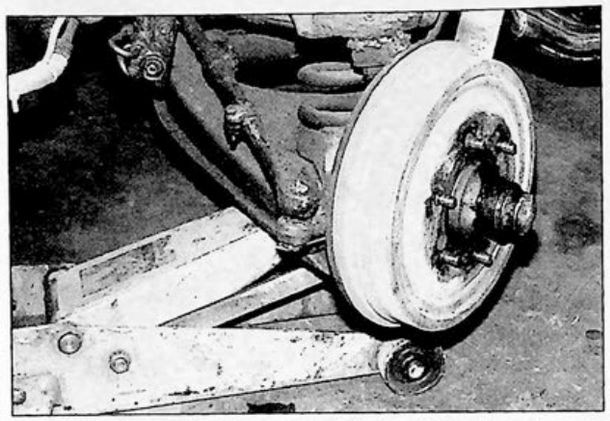
To begin, the truck must be properly jacked-up and supported with a good set of jack stands. If you do not have this equipment, stop and seek a professional facility to complete the installation. →



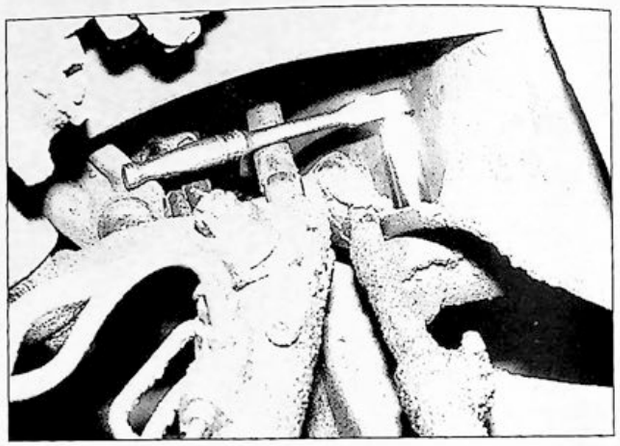
The stock shocks must be removed from the bolt location on the frame. You need not remove the shock from the control arm since the entire control arm is going to be removed



By lifting up the spindles and brake assembly, the stock coil spring can be removed. Use caution because the spring can fly out and cause injury.

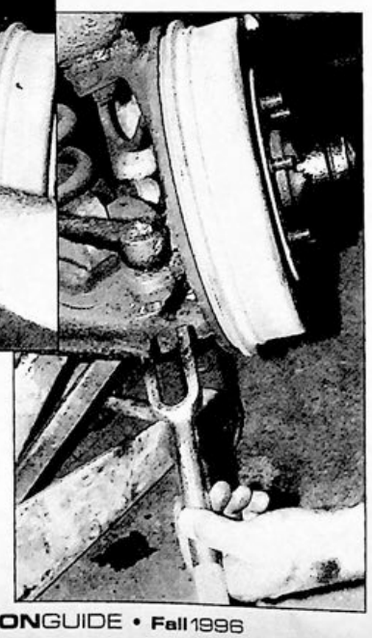


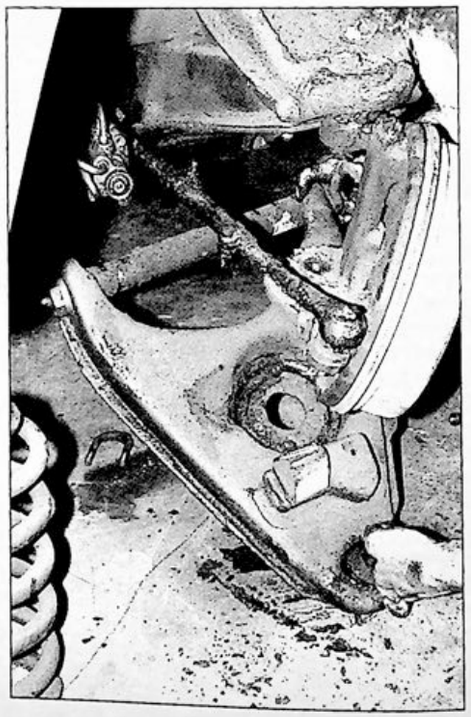
Slide a floor jack under the control arm and raise it slightly, just enough to relieve some of the spring pressure from the lower ball joint.



The next step is the removal of the stock lower control arm. There are four nuts, two on each side of the crossmember and two U-bolts that make up the control arm attachment. This assembly must be removed.

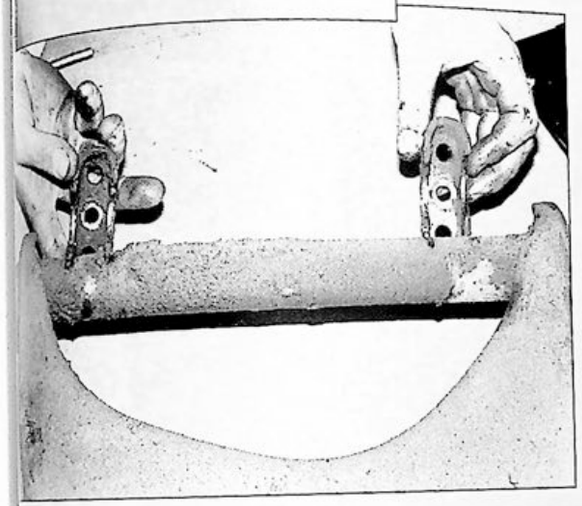
Remove the ball joint nut and use a pry fork to break the spindle loose.

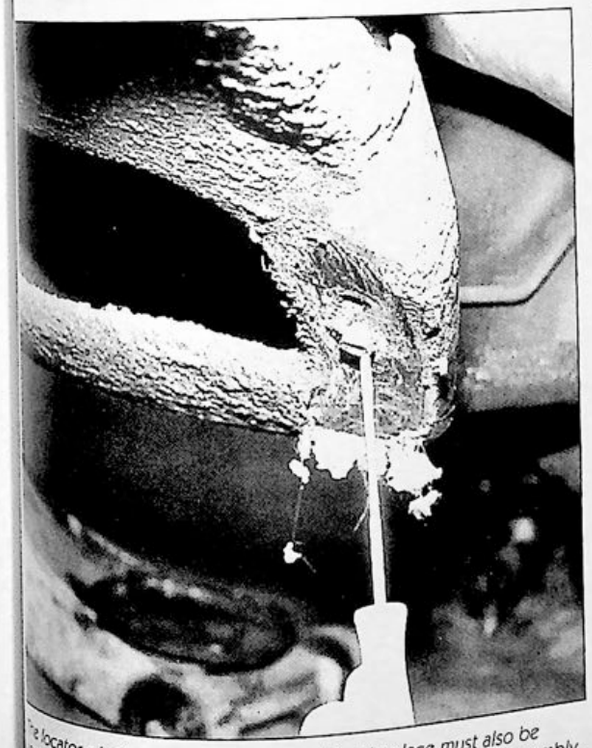




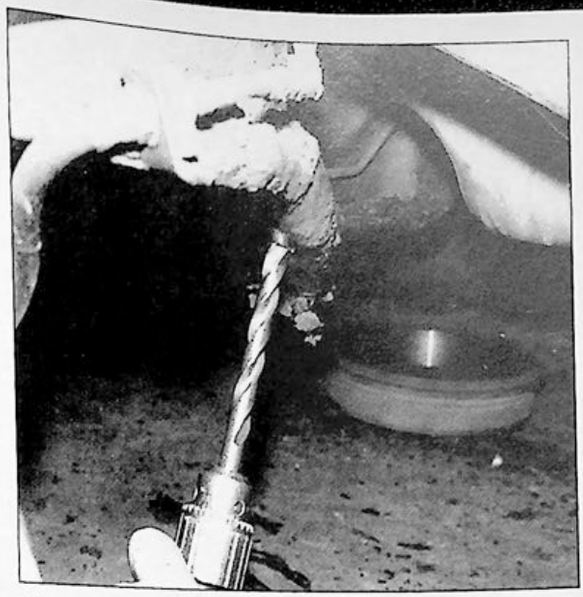
When the U-bolts are out, the control arm can be removed.

The two steel bushings that are attached to the bottom of the crossmember must be removed too. An air chisel will break them loose nicely

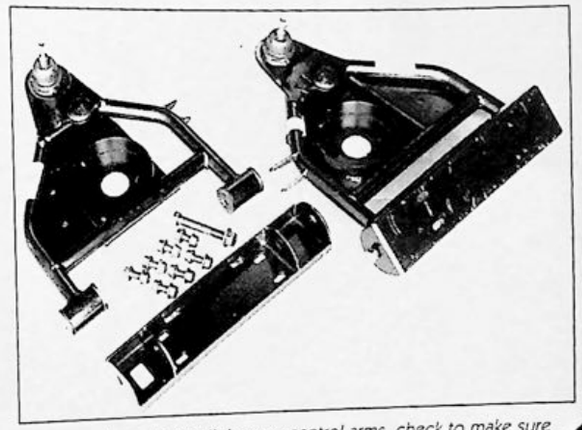




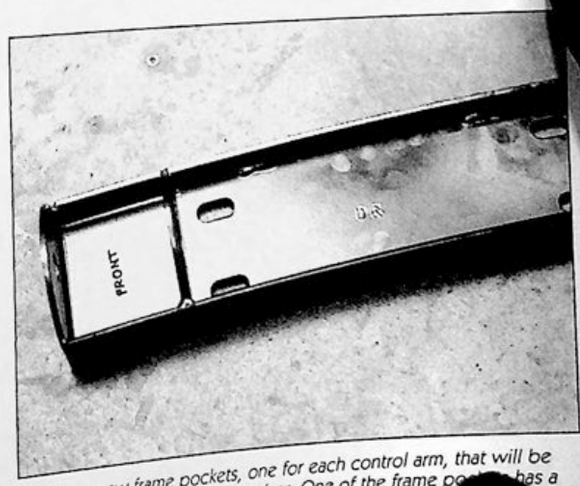
The locator pin that held that steel bushing in place must also be removed to allow proper installation of the new control arm assembly.



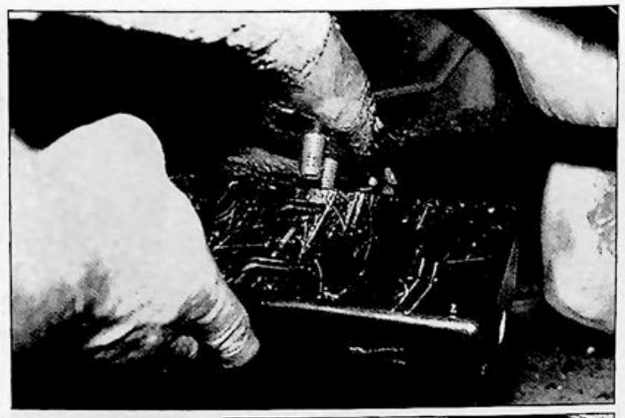
Using a 1/2-inch drill bit, drill-out the four U-bolt holes. The stock hole diameter isn't large enough to allow the new grade eight bolt to pass through on the '63-66 models.



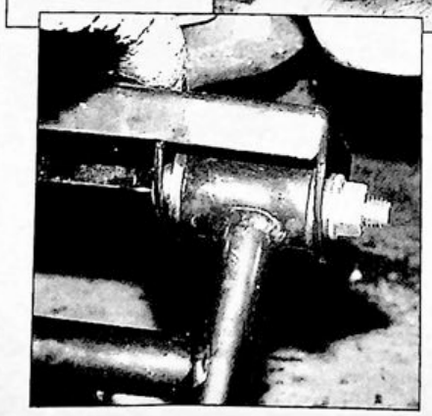
Before you begin to install the new control arms, check to make sure that you have all of the hardware and components needed.



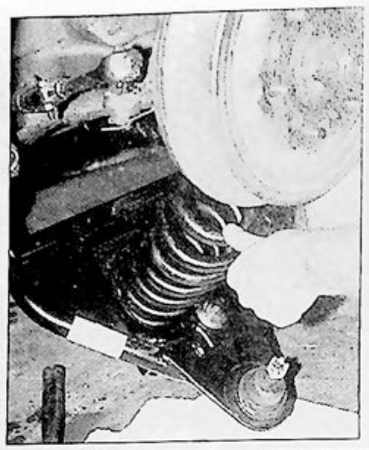
There are new frame pockets, one for each control arm, that will be attached to the frame crossmember. One of the frame po[illegible] has a "DR" stamped inside meaning that it is the one for the [illegible] and a label pointing out which end faces forward. It is ve[illegible] the frame pockets be installed on their respective sid[illegible]



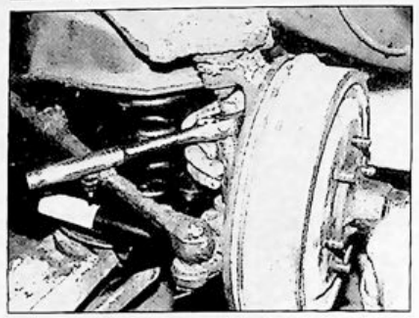
Installing the new frame pockets is easy. Simply insert the provided bolts through the cross-member holes from the top and slide the frame pocket and tighten.



When the frame pockets are securely mounted, the new tubular control arm can be installed. Once again, the kit provides necessary bolts needed to install the control arms. It is best to install the bolts so the nut is on the outside of the frame pocket. This will allow for easy access.



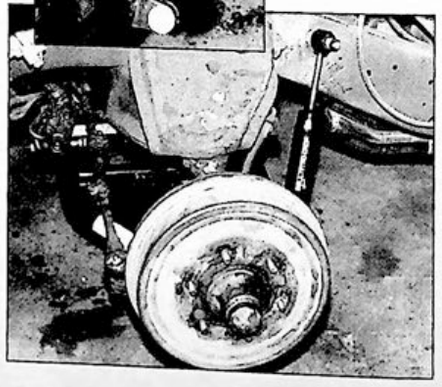
Now that the new control arm is in place, the lowered coil spring can be installed



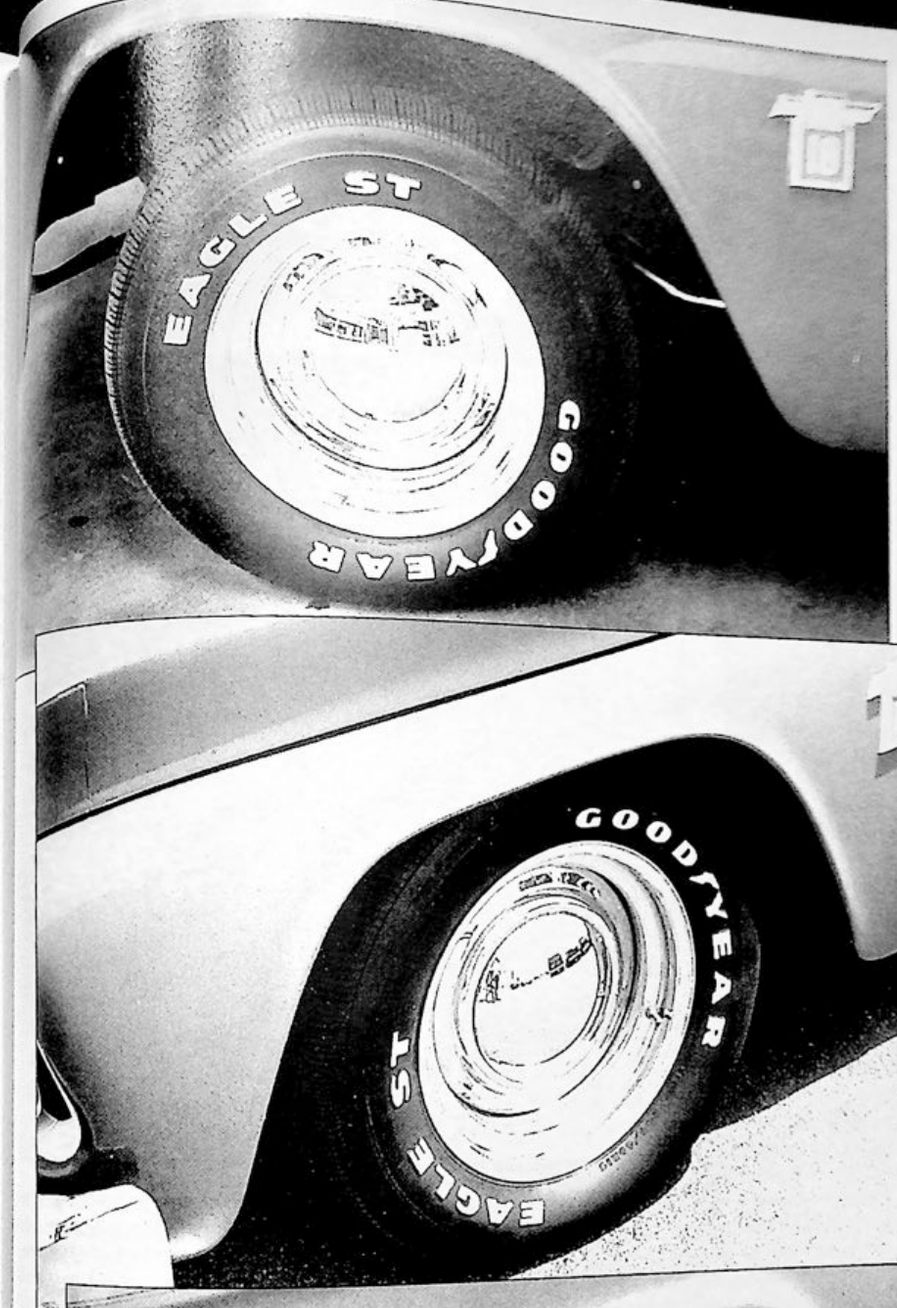
Use a floor jack to raise the control arm and compress the spring to a reasonable point that allows the spindle assembly to be installed onto the ball joint. Make sure that the top of the spring is in place in the upper spring pocket

Tighten the ball joint nut to factory specifications and be sure to install the cotter pin.

Good shocks are important for the proper function of suspension components. Classic Performance Products uses Bell Tech Nitro-Drop shocks that are designed for lowered suspensions.



There you have it, the installation of the only tubular control arm that will allow drum brake Chevy truck owners to considerably lower their rides and maintain a quality ride and their factory brake assembly. Remember, these new control arms are also designed for Chevy and GMC trucks up to 1987.



This is what the front suspension will look like under stock conditions

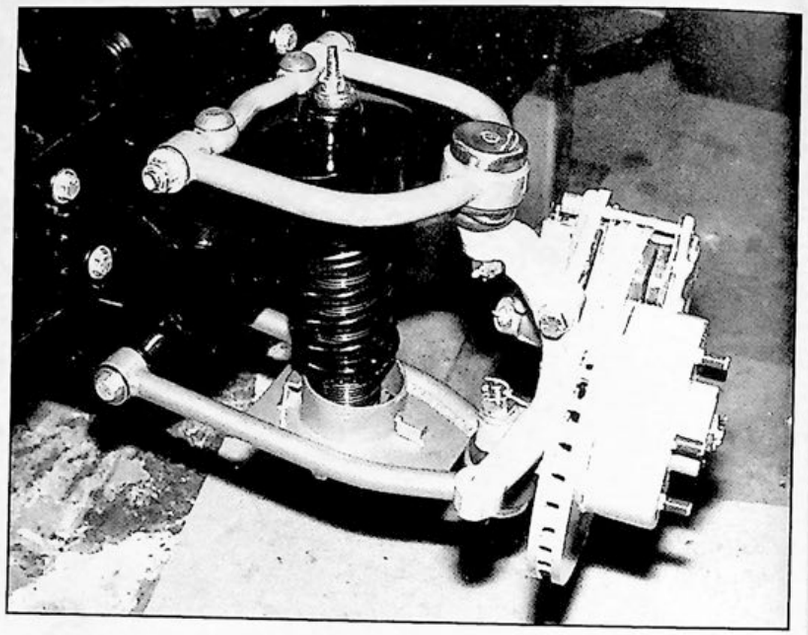
This is how the front end looks now with the new tubular control arms and lowered coil springs. Remember to have your alignment checked before you take off for cruise night!

To lower the rear, Classic Performance Products lowered rear coil springs and lowering blocks were used which provides a four-inch drop that is equal to the front. Lowered leaf spring packs are available for trucks that are originally equipped with leaf springs.

BOLT-IN MUSTANG II FOR 1967-72 CHEVYS: PART 1

Fat Man Fabrications' new crossmember takes suspension lowering to a new and innovative level

BY BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK



Alright 1967-72 truck fans, are you tired of clipping your lower control arms on every little thing that sticks up in the road? Or, how about that huge factory front crossmember that hangs so low you could use it for a snowplow? And even if you have gotten used to your suspension hanging low and hitting everything in the road, wouldn't it be nice to be able to put the front bumper only inches off the ground, and have more suspension clearance and travel than you do right now? The obvious answer is "yes!"

Well, now that I have got your attention, allow me to introduce a revolutionary new suspension kit for 1967-72 GM trucks that will change the way you think about putting your truck on the pavement. Fat Man Fabrications has been a leader in Mustang II custom crossmembers and associated components for the street rod world and early classic trucks for many years now and has recently developed a bolt-in — that's right, bolt-in — Mustang II front crossmember for the 1967-72 GM trucks. This new crossmember uses the factory frame holes of your stock crossmember, with the addition of four extra holes to be drilled, allowing it to simply bolt right into place. The Fat Man crossmember, when bolted-in, will give you an extra two inches of ground clearance over the stock crossmember, and gives you the option of lowering your truck even more. Definitely a bonus plan!

Designed entirely around the stock Mustang II front suspension, Fat Man's crossmember allows the owner to choose from a variety of suspension options, depending on how high-tech a person wants to get, and how low you want to go. For instance, you can choose to install the Fat Man crossmember, then go to the junkyard and rob a Mustang II front suspension from a donor car, which would include the upper and lower control arms, rack and pinion steering assembly, tie-rod ends, strut rods, shocks, springs and spindles (which I might add, are available from Fat Man Fabrications). Or, you can choose phase two which brings a set of Fat Man's tubular control arms into the picture, which means you can delete the strut rods and have more of a high-tech look. Or, better yet, you can choose the serious approach of phase three and add coil-over shocks into the program. Either way, this is the "E" ticket ride you have been waiting for.

Now let's summarize the installation procedures and the products used to the get the job done. Golden State Pickup Parts, a suspension innovator themselves, performed the installation. To begin, mark the spindle center points on the floor and frame, then, leaving the stock suspension together, the stock front crossmember is unbolted and removed, as is the steering box, sway bar (if your truck has one), drag link, steering shaft and motor frame mounts. When removing the stock crossmember, be sure to support the frame from behind, preferably just under the cab at the firewall because the frame will get real flimsy without a crossmember.

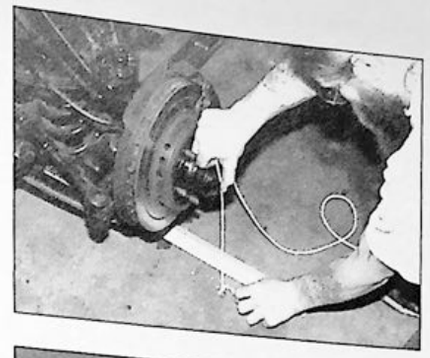
The Fat Man Mustang II front crossmember simply bolts into place using the stock crossmember holes. The two side holes at the front of the crossmember on either side are the only holes you have to drill. Convenient, huh? The kit provides the grade five mounting hardware with Nyloc nuts to properly secure the crossmember in place.

In this installation, the suspension used consists of Fat Man Fabrications' tubular upper and lower control arms that come complete with the ball joints installed and polished stainless joint covers as an added bonus feature. For spindles, we chose to install Heidt's Hot Rod Shop two-inch dropped Mustang II spindles that are made to stock geometry specifications. The Heidt's dropped spindles will further allow us to put this truck in the weeds.

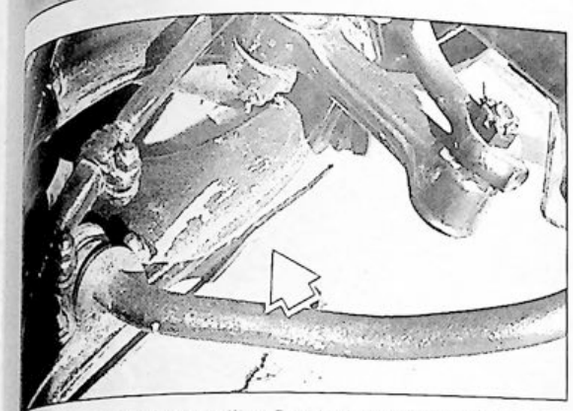
In the shock and spring department, we chose to step up to a coil-over conversion from Pro Shock that eliminates the need for the stock stuff, relying solely upon a custom valved cadmium-plated shock with stock mounting features at the top and a rod end at the bottom. A seven-inch/500 lb. spring seemed like the right progressive set-up and with this adjustable coil-over design, we can add pre-load or raise and lower the overall suspension height.

One of the most important features in this installation is the

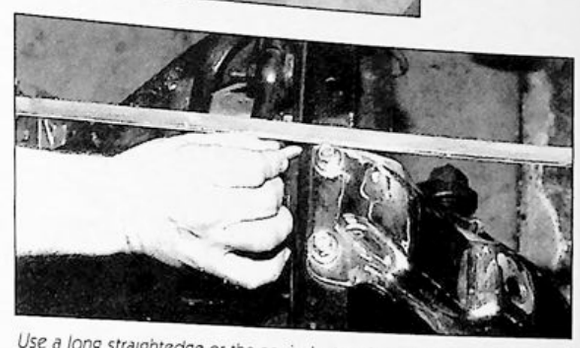
This is what the stock suspension looks like; big, bulky and too low to the ground. It is advisable to remove the front sheet-metal and engine before tackling this installation.



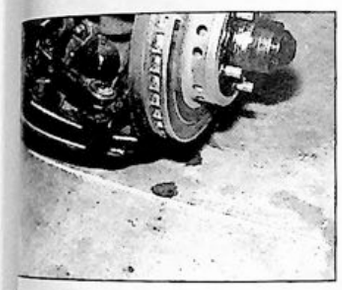
Mark both spindle centers and make a straight line from side to side on the floor with chalk.



...f the main reasons for installing Fat Man's Mustang front suspen-...s because it will relieve you of headache due to your stock ...pension hanging too low. When you lower a 1967-72 Chevy truck, ...ntrol arms hit everything in the road as you can see here by the ...f this damaged A-arm.



Use a long straightedge or the equivalent and mark the spindle center points on the frame.



To begin, properly jack up the front suspension and support the truck with jackstands from BEHIND the crossmember! With the steering pointing straight ahead, mark the spindle center on the floor.

Now begin removing the stock suspension, starting with the shocks.

...s Engineered Components, Inc., has a great brake kit that ...signed to be used with the Mustang II suspension. The ECI ...rovides an eleven-inch rotor of Camaro descent in either ... or Chevy bolt patterns. The Chevy bolt pattern is five-on ...-and-three-quarters. If your truck has factory disc brakes, ...-wheel bolt pattern is five-on-five. And if you have drum ...s, you obviously have a six bolt pattern. Either way, your ...pattern is going to change up front.

...so included in the ECI kit are a pair of Chevy calipers with ... and all the bearings required. A custom-made bracket ...ded) allows the calipers to be used with the Mustang II ...les and Chevy rotors.

...ow that we are using a Mustang II-based front suspension, ...steering assembly is changing too. There are a variety of ...sing racks that you can use including power and manual ... Ford, or power and manual from TRW. We chose the TRW ...from American Caliper Exchange because it has a chrome-...d center section and aluminum cast ends. Now, the key to ...g the rack and pinion steering assembly rests on the shoul-...of a rack extender that bolts onto the passenger side of the ... There are different extenders depending on what steering ...you are using. Be sure to specify which steering rack you ...ld to use when you are ordering so that you get the proper ... Man extender. The extender is very important because it ...inates bump steer and establishes proper rod-end geometry. ...steering construction will be shown in part two of the sus-...sion installation article due to the editorial length.

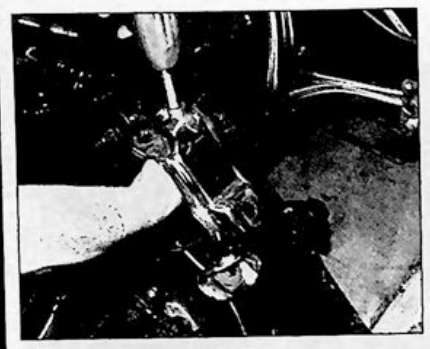
...the Fat Man crossmember will not allow you to reinstall your stock motor mounts easily. You have two options. The first is to purchase Fat Man Fabrications' motor mount kit that is tubular in design and attaches to the crossmember and frame. The second option is to install your stock engine mounts, then fabricate a lower bracket out of 3/8-inch bar stock to attach the lower portion of the motor mount to the frame to clear the steering rack. Golden State Pickup Parts constructed a nice bracket (as you will see) so that we could use the stock motor mounts.

Your stock steering shaft is of no use now either. Golden State Pickup Parts constructed a new steering shaft using tw... Borgeson joints, one at the top and one at the bottom, and slight... ly notched the frame for additional shaft clearance.

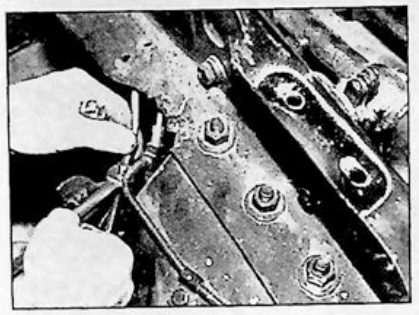
Another have-to-do is that you must shorten your steering column three inches to gain the proper shaft angle. It is advised that you have a professional perform this task if you have never done this before. But, as I mentioned earlier, we will discuss steering in part two.

When the entire suspension and steering assembly is in place, all you have to do now is have new brake lines run from the master cylinder to the front ECI brake calipers and to the connector that leads to the rear brakes.

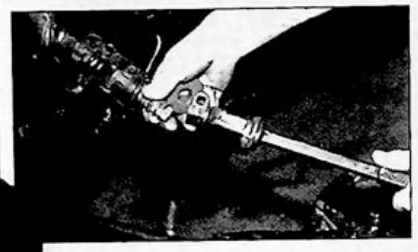
There is no doubt that this new Mustang II setup is the hot ticket for getting down real low, while keeping suspension geometry in tune and your components off the ground. In fact, you are probably going to be really surprised at how much clearance the Fat Man kit provides. Oh yeah, be sure to have your suspension aligned before you take off down the road to show off your new suspension to your friends!



Unbolt and remove the stock motor frame mounts.



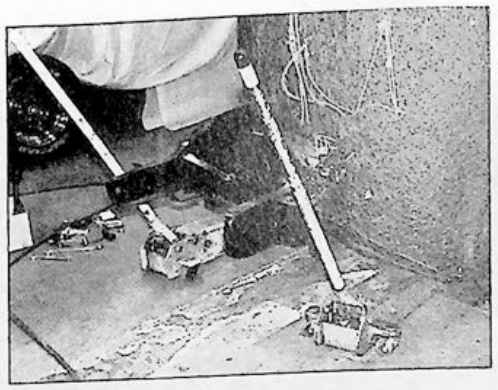
Your brake lines are attached to the rear of the stock crossmember. Disconnect them from the lines leading down from the master cylinder, then remove the master cylinder lines.



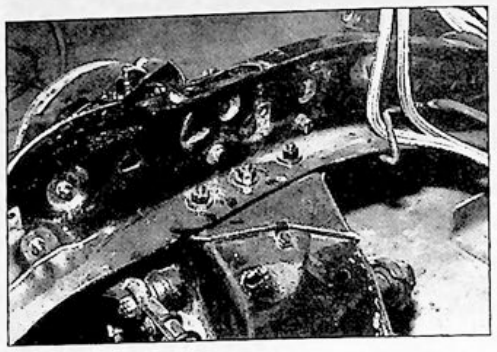
The next step is to remove the steering shaft from the steering column. You will not use the stock steering shaft with this setup.

If your truck has a sway bar, it too must be removed.

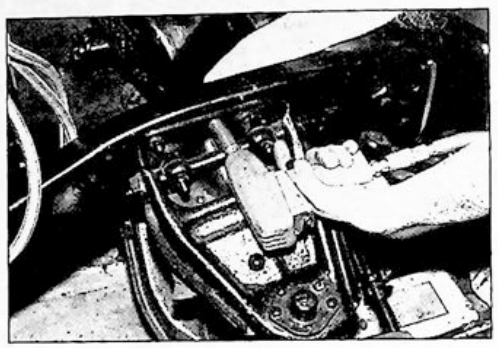
Now, disconnect the steering stabilizer or dampener from the stock crossmember and the pitman arm from the steering gear box. Leave the drag link attached to the crossmember.



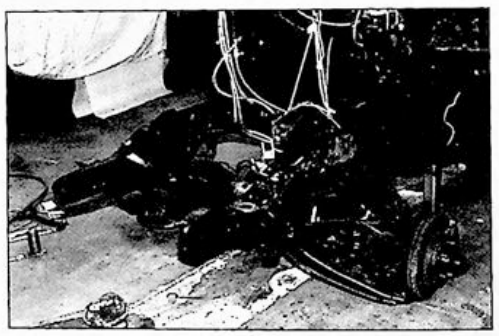
Before you begin to unbolt the crossmember, put floor jacks under each lower control arm to hold the subframe up after it is unbolted.



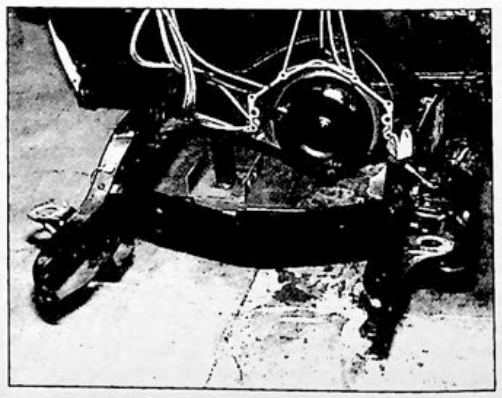
If you look to the inside of the frame, you will see how the crossmember unbolts. There are nine bolts to remove on each side.



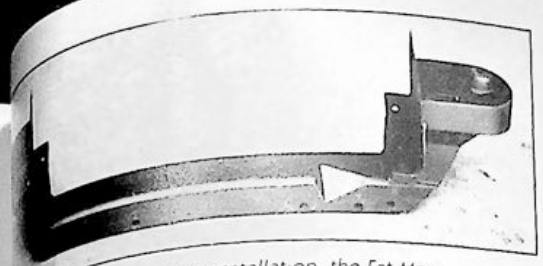
Some of the nuts are removed from the outside of the frame as shown.



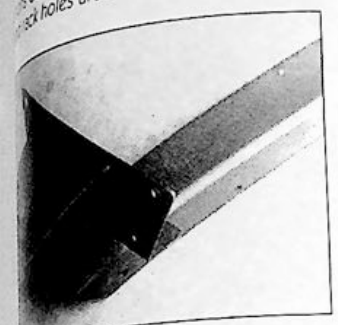
When all of the crossmember nuts and bolts are removed, the entire stock front suspension can be lowered from the frame and removed from the area.



With the crossmember out of the way, all of the other unneeded accessories are removed from the frame such as the steering box.

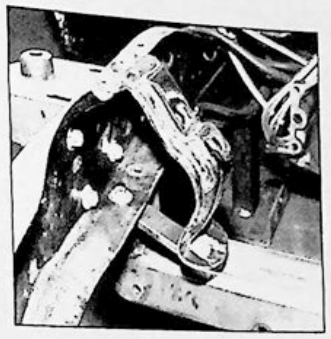


...backbone of this whole installation, the Fat Man ...bolt-in Mustang II crossmember. Notice the mounting ...ck holes are all pre-drilled.

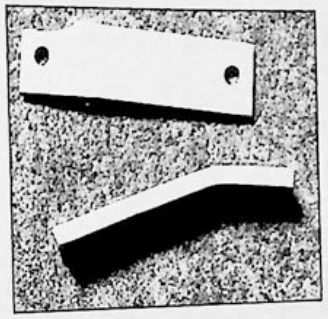


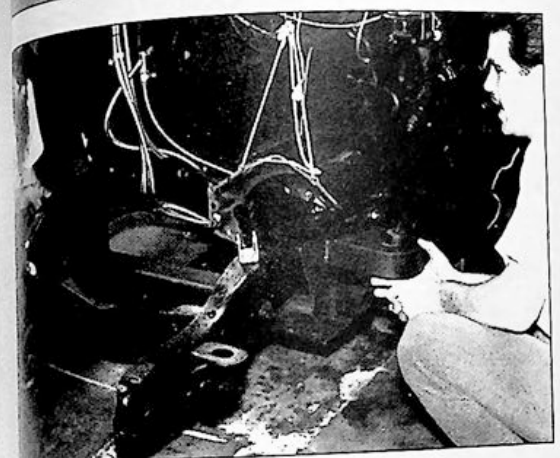
The crossmember is really cool and one of those matter-of-fact items that obviously is a lot lighter than your stock crossmember. With the holes pre-drilled, it is nearly impossible to bolt the crossmember in wrong.

When the holes are drilled finish bolting the crossmember to the frame. Make sure that all hardware is tight for a final fit.



The Fat Man crossmember will not allow your stock motor frame mounts to bolt to the crossmember. The motor mounts aren't long enough. If you choose to do so, you can make a set of brackets extending from the frame to the bottom of the motor mount if you like, using a minimum of 3/8-inch thick steel, or purchase a Fat Man Fabrications motor mount kit separately.

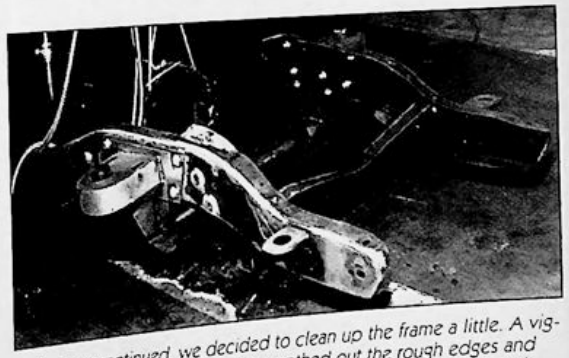




...de the crossmember into place on the frame and begin insert-...rovided bolts and lock nuts.

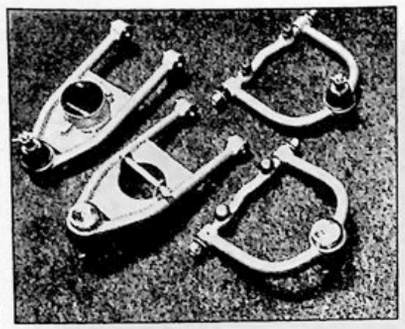
When you begin to install the bolts, you will notice that the lower crossmember holes and rear outside holes line up with the stock frame holes.

The only holes you have to drill are the two front upper and lower holes on both sides (a total of four).

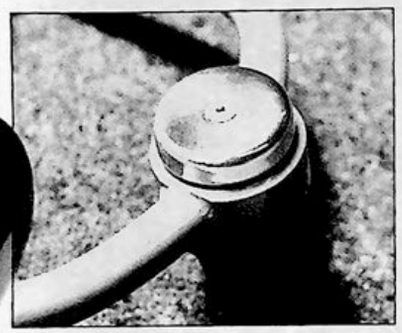


Before we continued, we decided to clean up the frame a little. A vigorous session with an air sander smoothed out the rough edges and removed the old paint in preparation for a fresh coat of gloss black.

See how much better the frame and crossmember looks with a shiny new finish? Let the paint dry for a day or two before you continue so that the finish isn't scratched during assembly.

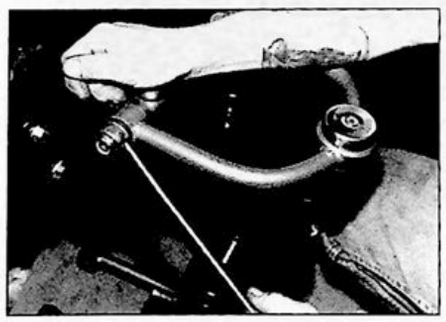


These are Fat Man Fabrications' tubular Mustang II control arms complete with ball joints, bushings, and mounting hardware. The arms are a direct replacement for the stock versions and also delete the need for the stock strut rods.

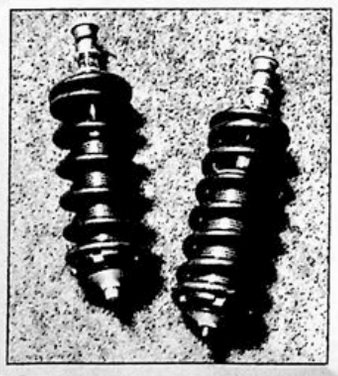


One of the really trick features of these arms is the ball joint nut covers that are made from aluminum and polished to perfection.

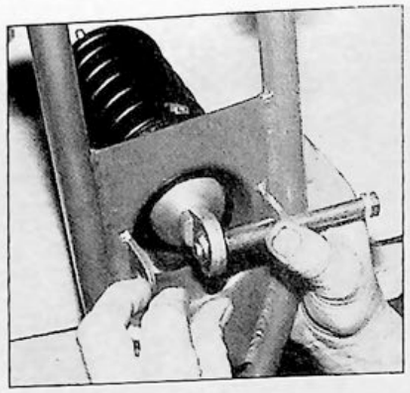
Simply bolt the upper control arm to the top of the crossmember using the two slots for the bolts to protrude through. Make sure that the nuts are on top.



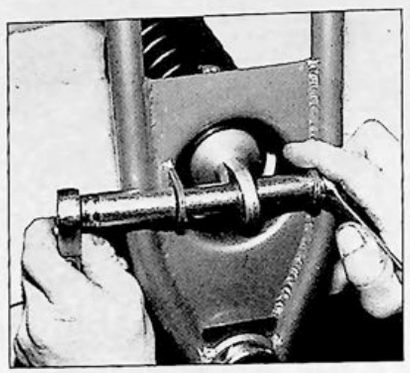
Fat Man's arms come complete with all the necessary hardware like nylon lock nuts.



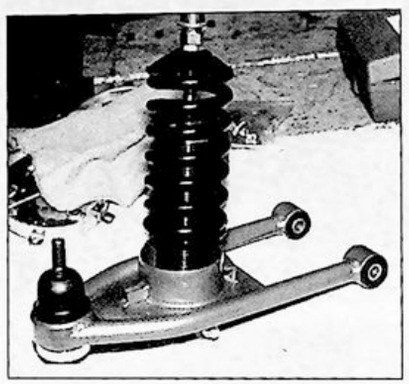
Replacing the stock Mustang II shock and coil spring setup for our particular needs, we chose to install a set of Pro Shocks coil-over shocks valved just right for the truck with 7-inch/500-lb. springs. The really trick feature with the Pro Shock coil-overs is that you can easily adjust the ride height.



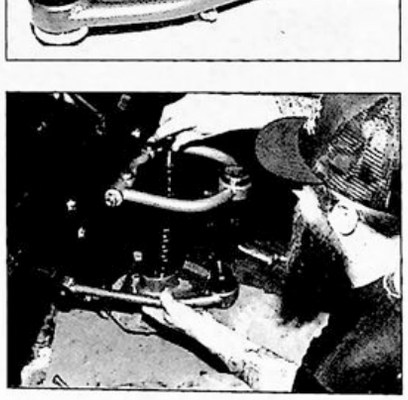
Make sure to install the shock onto the bottom control arm first. Slide the bolt through one side, through the Pro Shock spacer, and into the rod bearing.



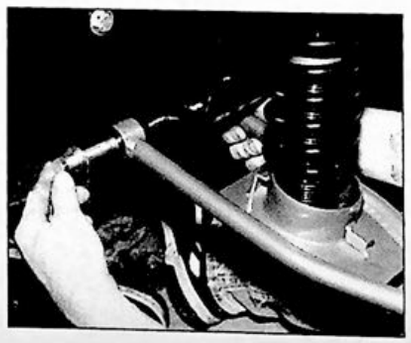
Then, insert a spacer on the other side of the rod bearing and slide the bolt straight through. When the bolt is all the way through, tighten the assembly real good using the provided hardware.



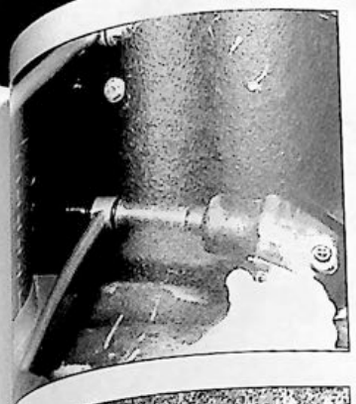
This is what you should have once you've attached the Pro Shock coil-over shock. Notice that the top of the shock is designed for stock shock installation. Fat Man also makes a lower control arm without the spring cup which is more adequately designed for coil-overs. Make sure you decide which route you are going with when ordering your control arms.



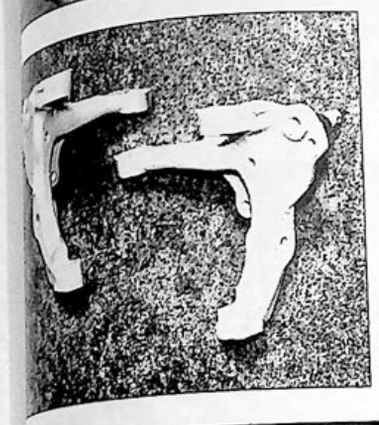
To install the lower control arm onto the crossmember, first raise the Pro Shock coil-over up into the shock and spring pocket of the crossmember. The top of the shock should protrude through the provided hole in the crossmember, then install the upper bushing and nut.



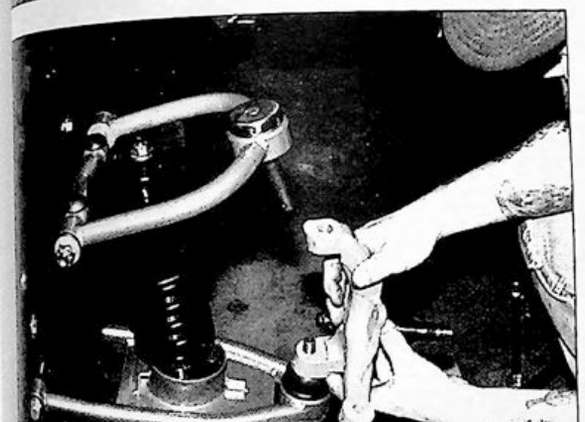
With the shock now in place, the lower control arm can be properly installed onto the crossmember. Slide the provided bolt through the arm and crossmember.



It is best to assemble the arm with the nut side on the back side of the crossmember for a cleaner look. Now tighten.



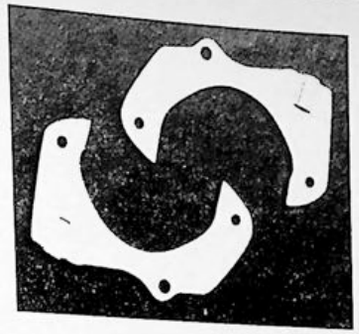
Now it's time to install the spindles. You have two choices. First, if you aren't looking for a super-radical slam, stock Mustang II spindles will work great, but if you want to really be in the weeds, Heidt's Hot Rod Shop makes a killer two-inch dropped Mustang II spindle that bolts right in and is geometrically correct.



...by installing the Heidt's spindle onto the lower ball joint.

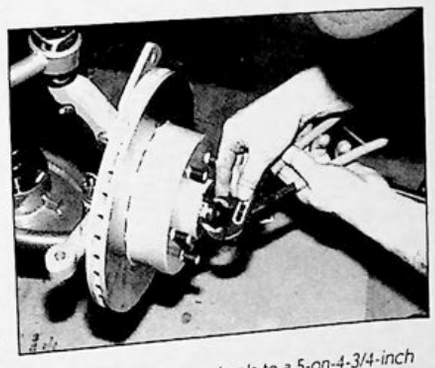
Install and tighten the crown nut and insert a cotter pin for added safety.

The upper control arm is attached the same way using a crown nut and cotter pin. Do not forget the cotter pins!

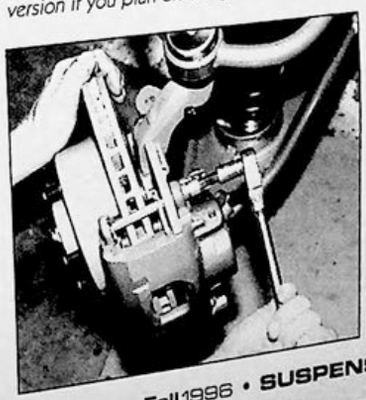


For brakes, we chose to install an Engineered Components, Inc., trick Mustang II front disc brake kit that uses GM calipers and 11-inch rotors which have been designed for use with the Mustang II spindles. ECI makes these cool caliper brackets that bolt directly to the spindle, the key to using the ECI kit.

The ECI caliper bracket bolts to the spindle in two places: one at the top of the spindle at the front and the second from the inside lower portion.



Here is ECI's Mustang II/GM conversion brake kit which includes GM calipers, pads, mounting hardware and 11-inch rotors with a 5-on-4-3/4-inch bolt pattern. Your stock rotors are 5-on-5 or 6 lug, which means that's what your wheels are. You will have to change your wheels to a 5-on-4-3/4-inch version if you plan on using the ECI brake kit.

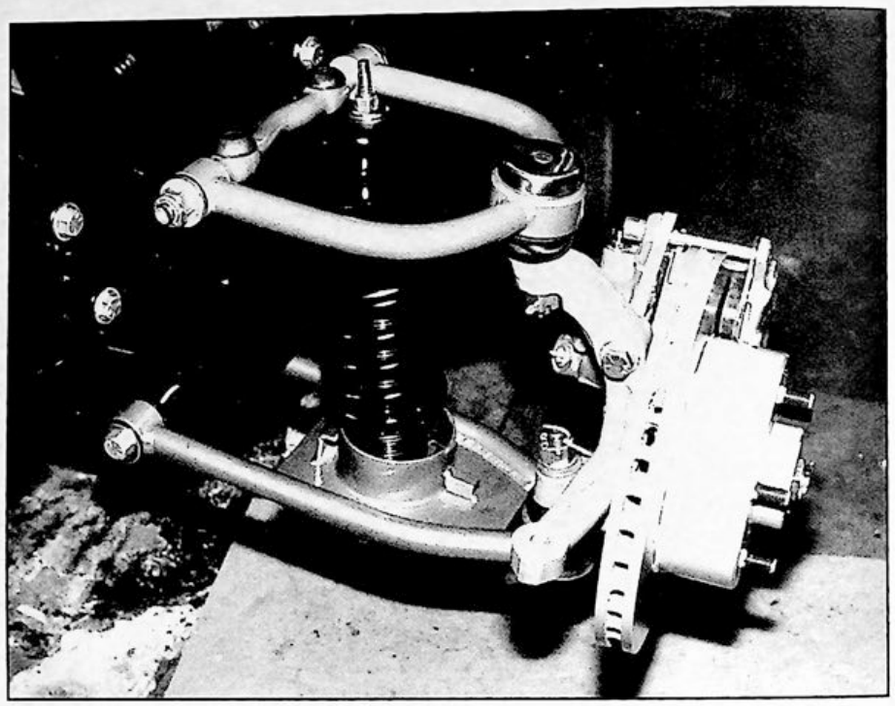


The Engineered Components, Inc., brake kit also includes all of the bearings and assembly components you will need to properly install their brake system.

BOLT-IN MUSTANG II FOR 1967-72 CHEVYS: PART 2

Installing the innovative steering assembly and brake lines to put this cool new suspension on the road

BY BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK



In the previous pages, we presented you with an in-depth technical story dealing with the installation of Fat Man Fabrications' new bolt-in Mustang II front crossmember for 1967-72 Chevy and GMC trucks. The installation took you through all of the necessary steps beginning with removing your old front suspension and crossmember, installing Fat Man's new custom made crossmember, and bolting on tubular control arms, Pro Shock coil-overs and ECI disc brakes.

Due to the extended length of the installation, it was necessary to divide the story into two parts for improved clarification, which leads us to this, the second and final portion of the complete installation. In part two, we are going to show you how Golden State Pickup Parts (the installer of this kit) equipped the truck with the proper new steering assembly and brake lines to complete the installation.

Since we are now using a custom-made suspension designed around the Mustang II suspension, the steering must also be based on the Mustang II design. There are a host of options when choosing the proper rack & pinion steering, ranging from power and manual OEM Mustang II racks to aftermarket TRW power and manual racks that are designed to work with just about any vehicle that was originally equipped with rack & pinion steering. All of the above-mentioned steering configuration options will bolt onto the Fat Man crossmember, but the key element is the rack design.

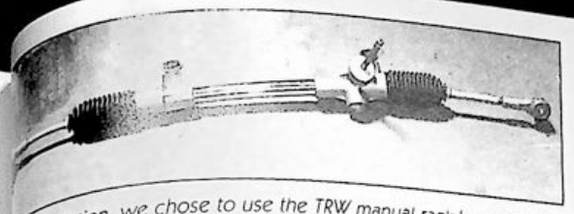
The manner in which the tie-rod end shafts attach to the main rack assembly is different for each case, thus, a different extender is needed to properly lengthen the overall rack and tie rod assembly from end-to-end. The rack extender is attached between the tie rod shaft and the main rack shaft, and the correct length extender provides the perfect steering geometry and eliminates any possibility of bumpsteer. But, what is most important, is the issue of choosing which rack & pinion unit you are going to use before you purchase the Fat Man kit. When ordering, be sure to inform them of your rack choice so that you get the right rack extender.

When the rack and pinion steering unit is installed, the next area of focus is the steering shaft. Your old shaft is of no use. In this installation, Golden State Pickup Parts found it necessary to shorten the steering column shaft 3-1/2 inches to cut down on the shaft angle. This is something that a qualified professional should perform for you.

The steering shaft itself measured 20-1/2 inches from end-to-end of the Borgeson joints. This provided the best angle with no joint lockup or bind. Each and every case will be different so don't think that your shaft will have to be exactly the same measurement. Also, if your Borgeson shaft joints seem to bind a little when you install the shaft, you can cure this by loosening the bolts of the column clamp that attaches to the firewall and adjust the column azimuth slightly to get the right steering flow for smooth turning.

In addition to steering, brake lines will have to be installed. Golden State Pickup Parts used the standard 1/4-inch hard lines for the rear and 3/16-inch hard lines for the front plumbing with through-the-frame fitting allowing the lines to reach out to the ECI calipers. Remember that if your truck is a 1970 or earlier that was originally equipped with four-wheel drums, you will have to change your master cylinder to a disc/drum version.

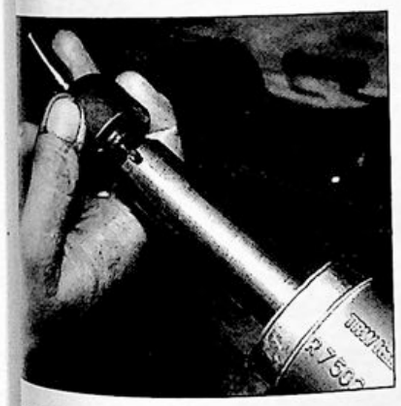
Follow along as we put the final touches on this totally innovative new front suspension that will put your truck in the weeds while providing additional crossmember-to-ground clearance.



...his installation, we chose to use the TRW manual rack because ...s chrome-plated center section. Rack & pinion steering will pro... ...u with an impressive increase in steering response that is ...rd-to-none.

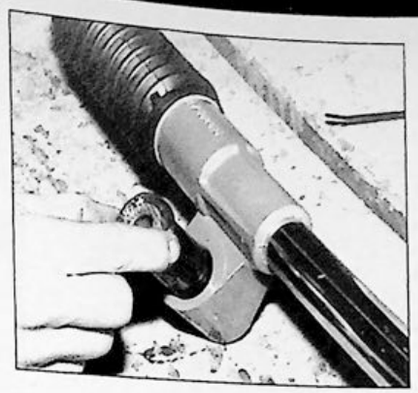
To begin, the plastic strap holding the boot on the passenger side must be removed.

Slide the boot outward over the tie rod shaft to expose the shaft knuckle that attaches to the main shaft.

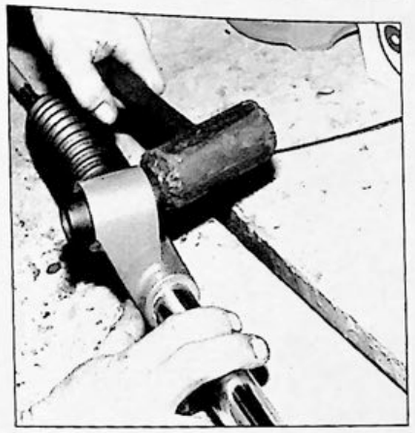


On this TRW manual unit, the tie rod shaft unscrews from the main shaft. Remember, the way the shafts are attached is different from model to model so be sure to let Fat Man know which rack you are using so that you get the proper extender.

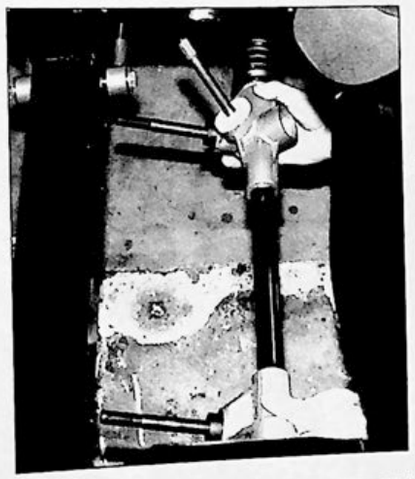
Here is a photo of one of the many different rack extenders. The extender attaches to the main shaft of the rack and allows the tie rod shafts to then be attached to the extender, thus creating the proper overall steering assembly length needed for the 1967-72 Chevy trucks as well as eliminating the possibility of bumpsteer.



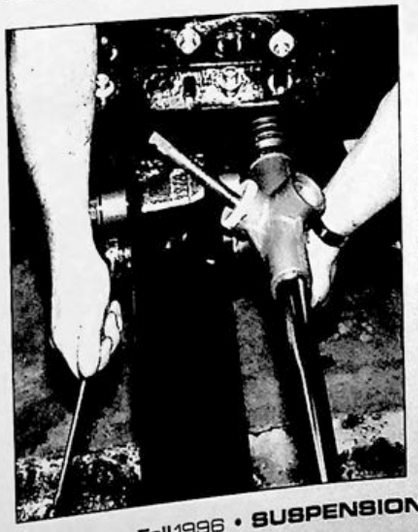
The two mounting bushings are installed into the rack mounts from the front side with the flanged lip of the bushing facing the front.



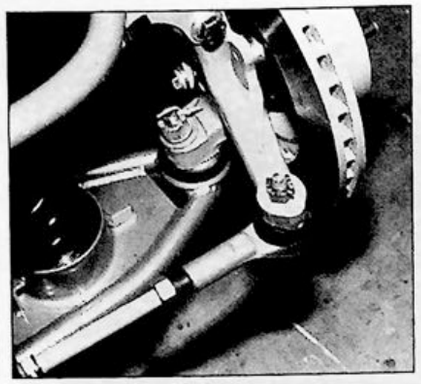
Using a rubber mallet, hammer the bushings in solid for a firm fit.



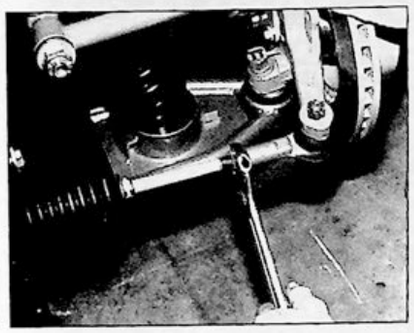
Attach the rack to the crossmember using the stock Mustang II rack bolts or grade eight equivalents.



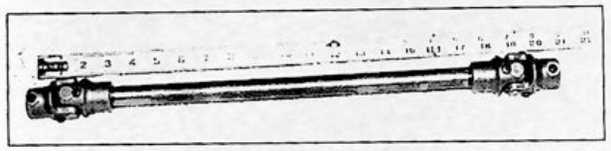
Snug a nut onto the bolt but do not tighten because you will have to slide the rack in and out when constructing the steering shaft.



The tie rod ends are installed from the bottom of the spindle with the nut on top, but only after measuring both the front and back sides of the calipers to get the alignment pointing in one direction. Be sure to slip in a cotter pin and grease the assembly too.



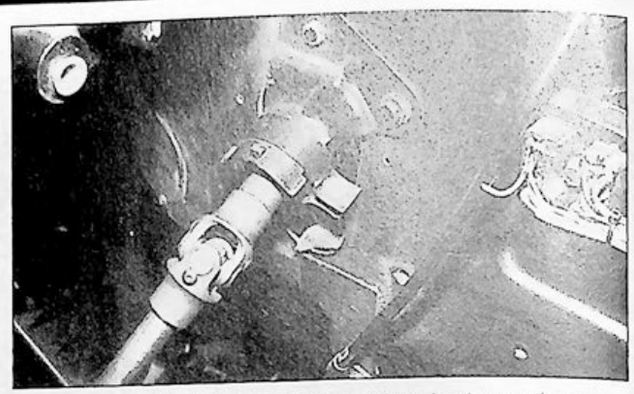
After you have the rotors pointed straight enough to get you to an alignment shop, go ahead and tighten the jam nut against the tie rod end.



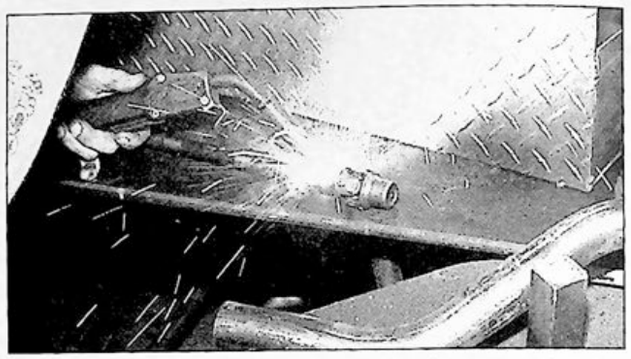
Measurements from the column shaft end to the top of the rack shaft were taken, which showed, in our case, a distance of 14 inches. That is only the shaft. With the Borgeson joints attached as if they were permanently assembled, the overall distance was 20-1/2 inches.

This is a closer look at the Borgeson joints you will need. One end of each joint should accept a 3/4-inch diameter shaft, and the opposite ends should be grooved, one to accept the 1/2-inch shaft of the rack, and the other to accept the end of the column shaft.

Before the shaft can be permanently attached to the column, take an air sander and chamfer the edge of the shortened steering column shaft.



Now, check the fit of the joints at both ends and make sure that you have complete and smooth turning function with no binds from stop to stop. If there is a little bind, loosen the column clamp on the firewall and adjust the column appropriately to cure the problem, then retighten the bolts.

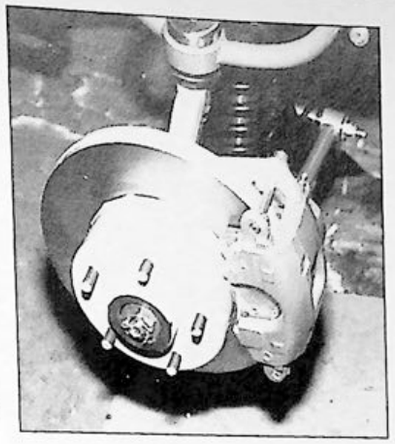


When it is determined that the steering shaft is of proper length and the joints are timed (both joints positioned to turn and yield at the same point during the shaft's rotation), weld the Borgeson joints to the shaft all the way around.

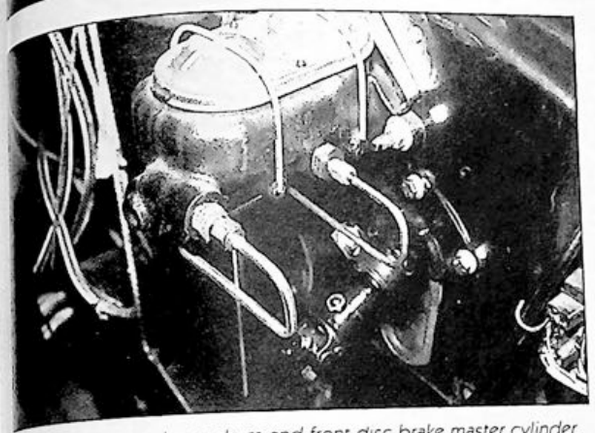
A hand grinder taken to the welds will clean up the look of the shaft and a little paint wouldn't hurt either.

Slip the rack away from the crossmember so that you can attach the joints to both the rack shaft and the column shaft.

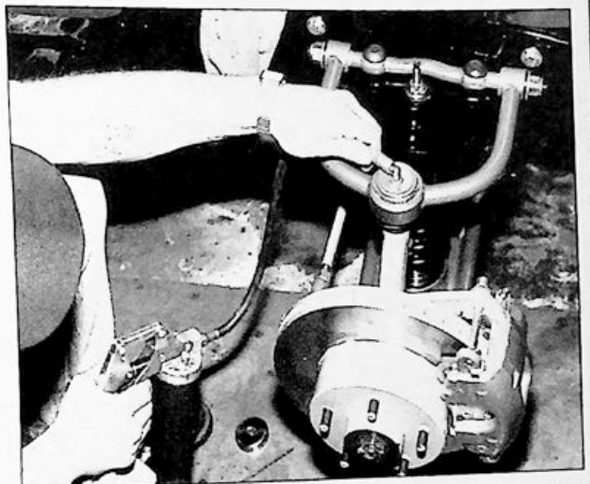
When the new steering shaft and joints are connected properly onto each shaft, the locking screw and jam nut on each joint must be tightened. Be sure to tighten the steering rack mounting bolts now that you are complete with the steering



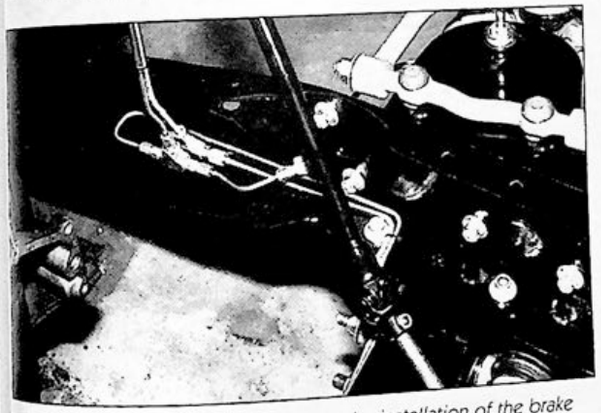
Be sure to bleed the brakes thoroughly while you can easily get to the ECI calipers. If you have painted the calipers, I would advise protecting the paint in some way before you begin.



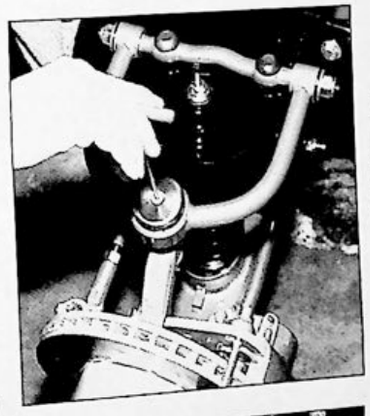
This truck has a manual rear drum and front disc brake master cylinder. The lines closest to the firewall are 3/16-inch hard lines and are plumbed to the front disc brakes while the 1/4-inch lines on the front of the master cylinder are routed to the rear brakes. There is a connector on the passenger side of the frame for the rear line to attach to



Screw in Zerk fittings on all ball joints and other required locations and fill each joint with grease.

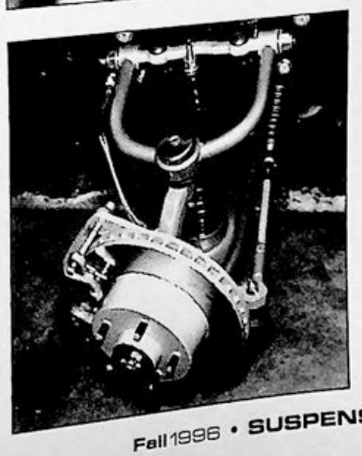


We used T's in several places throughout the installation of the brake lines so that they could be easily installed and removed. Notice that the lines run together for a nice appearance.



To top off this whole installation, Fat Man puts the icing on the custom cake by providing these polished aluminum ball joint covers that screw in once the Zerk fitting has been removed.

Through-the-frame fittings allow the brake lines to be routed cleanly out the frame side for another nice touch.



And there you have the ultimate high-tech suspension for 1967-72 Chevy and GMC trucks. This kit will put your truck in the weeds while keeping geometry correct and increasing ground clearance.

CORVETTE YOUR CLASSIC

Werks Performance shows how they added a complete '85 Corvette suspension to a '48 Chevy

This photo gives you a real good look at the front Corvette suspension. When we shot this photo the UPS truck with the Aldan coil-overs had not yet arrived so we faked it with a set of regular shocks. You can kinda see the rear suspension in this photo. Imagine if all the aluminum arms on the front and rear along with the half shafts, housing and yoke were polished and the frame had a real glossy black powder coat job on it. That would look bitchin'!

BY RANDALL JACHMANN
PHOTOGRAPHY: RANDALL JACHANN

A few weeks ago I received a phone call from the guys over at Werks Performance of Fountain Valley, California. They told me that they were getting ready to put a full '85 Corvette suspension under a '48 Chevy pickup frame. Well, I told them that I would be over the next morning to shoot the full install.

When I arrived it was just about done. They told me that they had found a little spare time and energy the night before and went ahead and started the project to make it a little faster when I arrived. That was just fine, I told them, but they had already done the meat and potatoes part of the buildup.

They were disappointed and so was I. This would have made a great story and none of us wanted to see it go to waste. So we sat down and went over what they had already done. After a few minutes I figured out how I could photograph the install so you could still get an idea of what it was they did and how they did it.

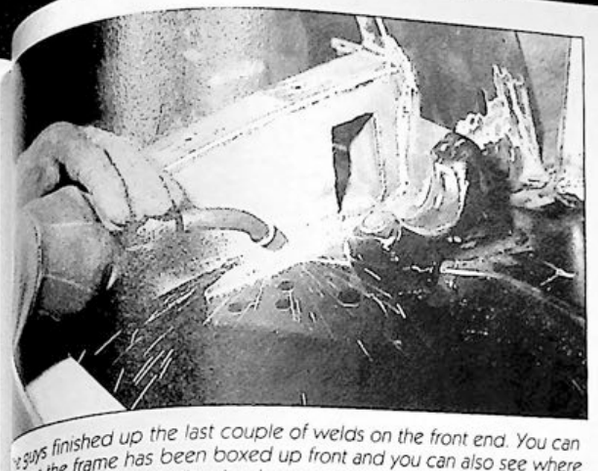
I just didn't want this story to get away. We have seen Corvette IRS (independent rear suspension) swaps since the early seventies, especially in street rods. Even the Jag suspensions were real popular during the seventies and early eighties on street rods.

This independent rear suspension craze was real popular among the F-100 crowd more so than the Chevy guys for a long time. Well, now we're in the nineties and this independent craze has really grown with the Ford and Chevy groups. This is the reason I wanted to get this story to you. The frame they used is a '48 Chevy half-ton and the owner wanted to go all out and Corvette it front to rear.

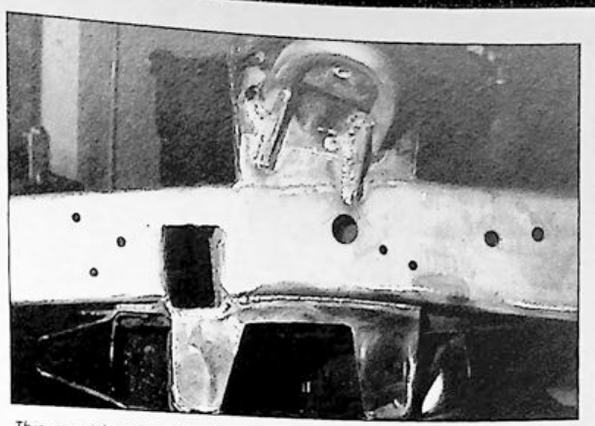
It will be kinda hard to show you some of the things that have been done to the frame but we'll give it a try. The frame has been boxed at the front and rear sections and the rest of the frame in the middle has been criss-cross braced for added support.

The front suspension uses parts of the stock Corvette crossmember combined with components that Werks Performance manufactures. The changes that Werks Performance makes to the stock Corvette crossmember allows you to use coil-over shocks in the front to help add a trick look to the front suspension.

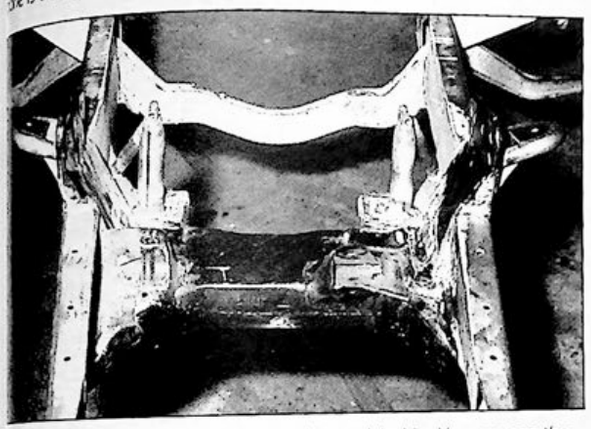
The rear is pretty straightforward. Werks utilizes a few stock mounting components but the rest of the stuff is part of their kit. Jump down to the photos and let me explain it better.



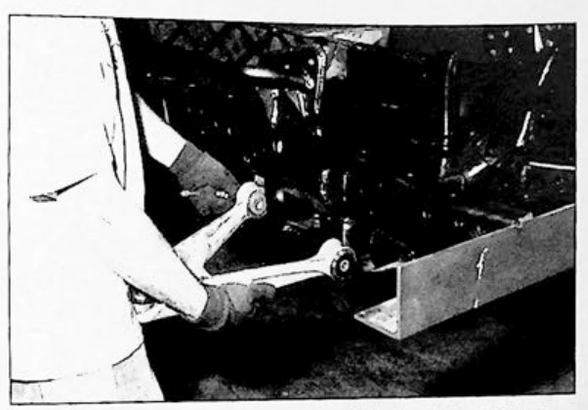
The guys finished up the last couple of welds on the front end. You can see that the frame has been boxed up front and you can also see where the stock front crossmember has been welded on. The square hole is for the tie rod of the stock Corvette rack and pinion to go through to the spindle. That strange looking bracket near where the welding is being done is the right factory Corvette rack and pinion mount



This is a side view of the frame. This lets you see where the upper and lower control arms bolt in. That funny looking U-bent tube on the top of the tower is where the top of the coil-over will mount. Again that square hole is for the tie rod to go through to the spindle.



Here's a view of the whole crossmember welded in. You can see the two coil-over mounts. The strange looking tubes standing upright are the engine mounts that Werks made to hold a small block Chevy V-8.



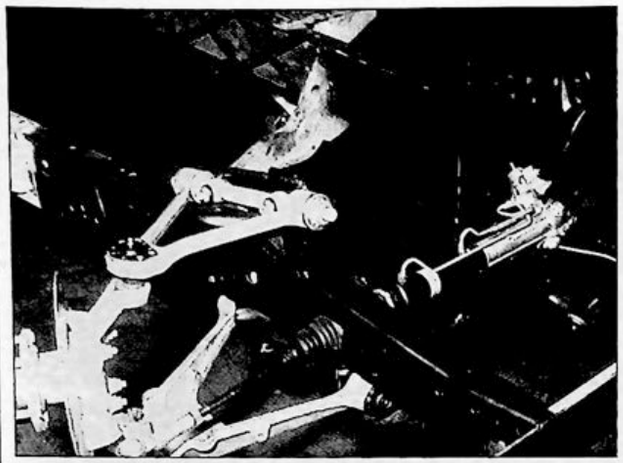
After the crossmember work was completed the installation of both the lower control arms was next.

All the mounting hardware was put in and tightened up.

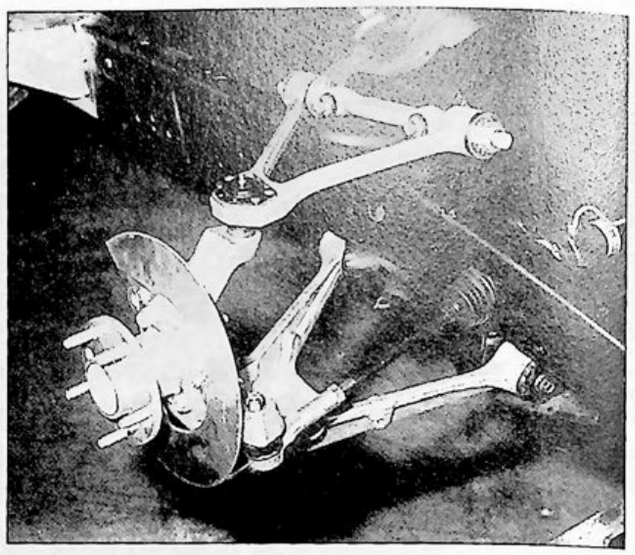
Then the upper control arms and hardware was installed. These arms would sure look bitchin' polished, huh?

Spindles were next on the list for installation. The ball joint hardware was tightened up and cotter keys were put on all the nuts. The rotors and calipers will be put on at a later time.

Now the rack and pinion was slid into place. You can see what the square holes are for now.

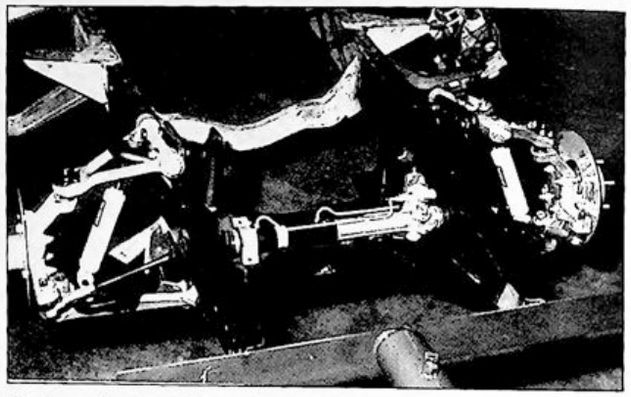


With the rack in place all the mounting brackets that hold it to the crossmember were installed. Then the tie rod ends were connected to the spindles.

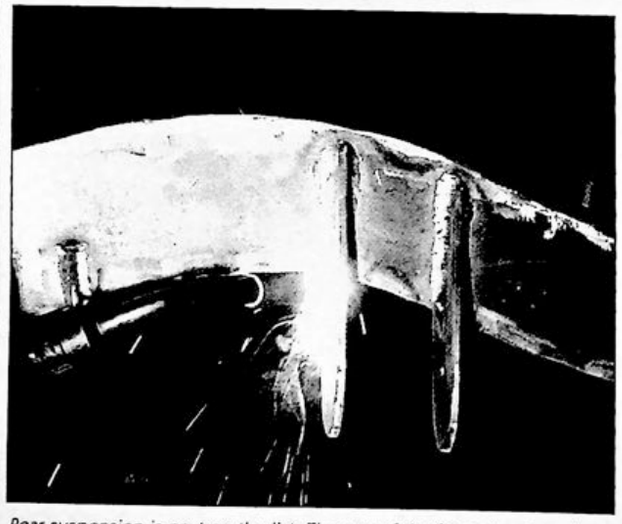


Here's what the front suspension looks like so far. You can see how the rubber bellows on the rack fits into the square clearance holes.

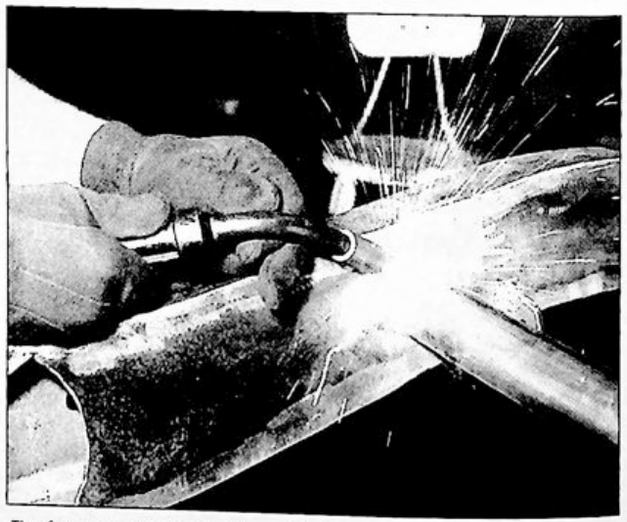
Next the lower shock mounting plates were installed along with all the hardware.



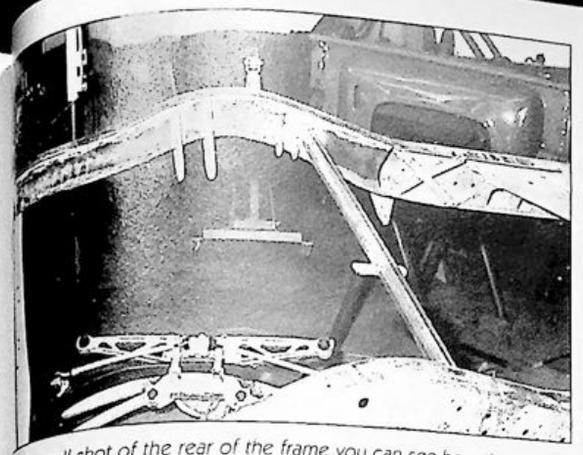
Coil-over shock installation should have been the next step, but they were not on the UPS truck when it arrived that morning so we had to just fill the gap with a set of regular shocks. You can still picture it with the coil-overs sitting in there.



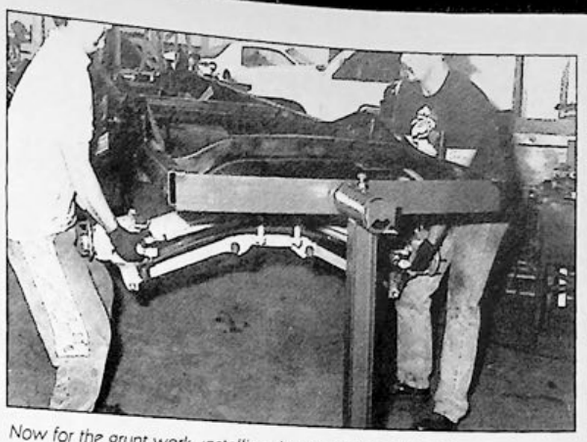
Rear suspension is next on the list. The rear of the frame has already been boxed and one of the last things to do was weld on the mounting tabs for the yoke that holds the rear of the differential.



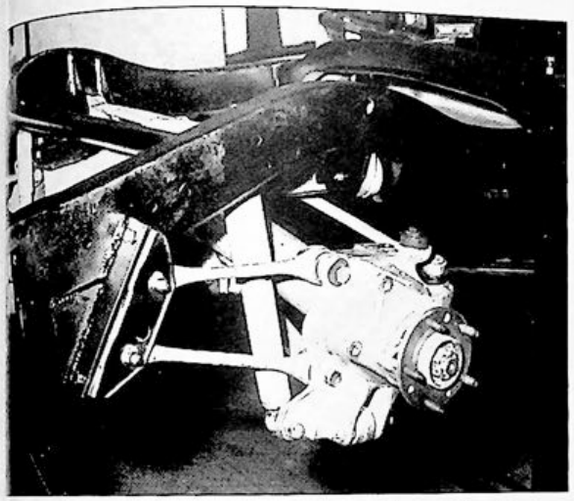
The front crossbar that holds up the front of the pumpkin was welded into place.



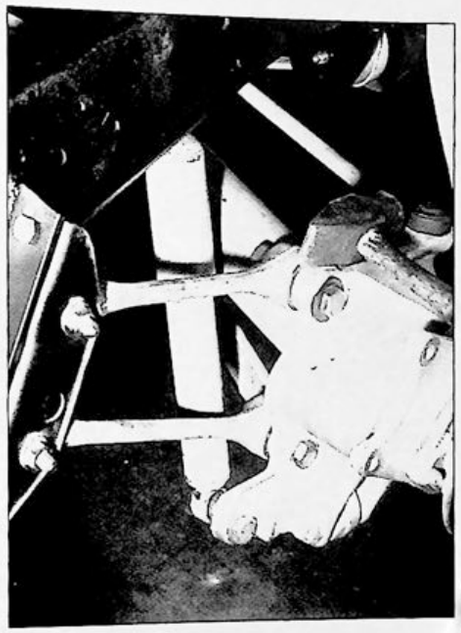
his overall shot of the rear of the frame you can see how the rear been boxed and the center of the frame has been crossbraced.



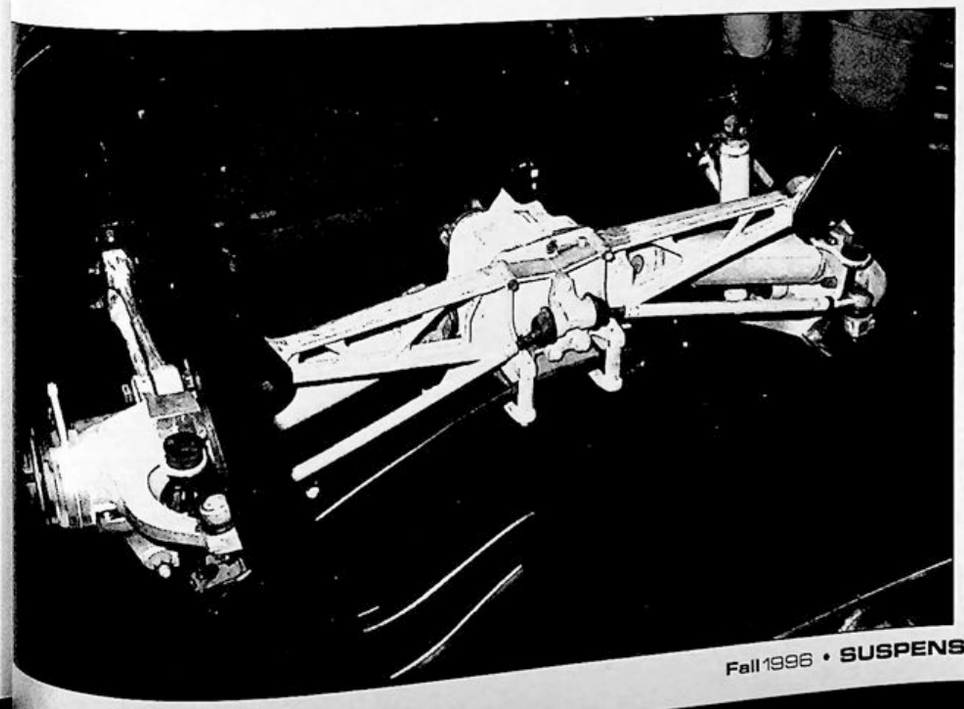
Now for the grunt work, installing the complete rear end.



h the rear end bolted into place the outer trailing arm brackets e put into place and welded on.



The upper shock mounts were welded in and the shocks were then installed. The stock shocks were used for now but will be replaced.



This overall view kinda lets you che things out. The rear end was not short-ened or widened and the stock Corvette spring was retained. This is a very clean installation and with a little alu-minum polishing and some powder-coat-ing work this frame will be a show stop-per. The addition of this suspension to this '48 frame will give this truck one heck of a great cor-nering ability as well as a real racy ride.

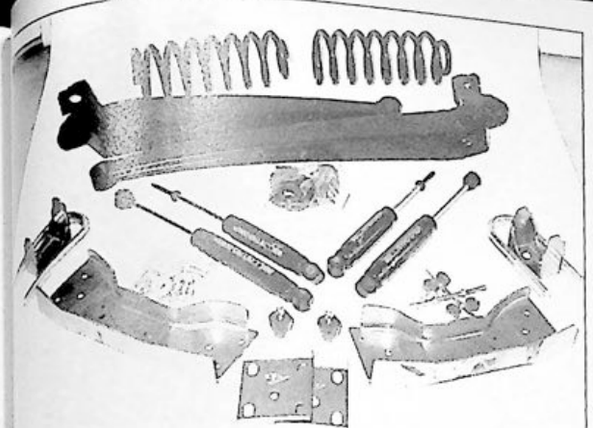
TOP SHOP FORD DROP

Stillen slams an F-150 the Bell Tech way

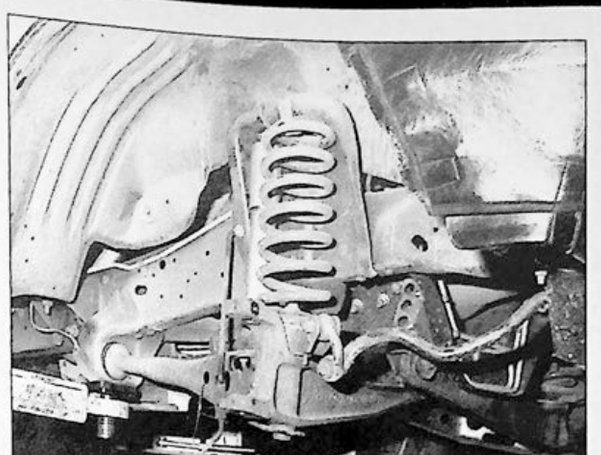
BY RANDALL JACHMANN
PHOTOGRAPHY: RANDALL JACHMANN

Since the evolution of the truck from workhorse to thoroughbred, it has become standard practice to upgrade, customize and personalize one's hauler. It's a tradition handed down through the generations. Fathers that were gearheads in the '50s and '60s passed it on to their sons, and so on. With the ever-growing popularity of the late model sport truck, the aftermarket industry had to swing their attention to this expanding consumer market. And through this time, the focus of the custom truck explosion has been centered on the products of GMC and Chevrolet. As a result, the industry has not created as many upgrade and customizing options for the diehard Ford owner. But as we've learned, nature abhors a vacuum; there are still a lot of treats in store for Ford nuts.

Stillen (Steve Millen SportParts, for those of you out there new to the sport truck industry) has been one of the key players supplying innovative products and installation services to the enthusiast. After contacting the guys at Stillen, they informed us of the frequent requests from customers asking for suspension packages and aesthetic peripherals for late model Ford F-150s and Rangers. After a little chit-chat with one of their informative tech specialists, it was time to get down to business. First things first, we needed a truck. A few phone calls later and *voilà*, we had tracked down an '89 F-150. In dire need of some TLC, we set the Ford's autopilot due west and navigated toward Stillen's Southern California facilities. The installation you're about to see is not a step-by-step, but emphasizes some key procedures. Stillen recommended the use of Bell Tech's '87-91 F-150 front I-beam kit and their C-notch axle flip kit for this application. The kit comes complete with all necessary hardware and explicit installation instruction. Once again safety is always stressed if you intend to install the suspension components yourself, or with the help of friends. Never work on or underneath a truck without proper support, and when working with suspension systems follow factory recommended procedures to relieve suspension tension from the system. Oh yeah, having the correct tools helps ensure the job goes smoothly. If you're not mechanically inclined or have any doubts on the installation of components, we recommend that a professional do it. Stillen would be happy to install it for you. If you have any questions on this or any other product give them a call!



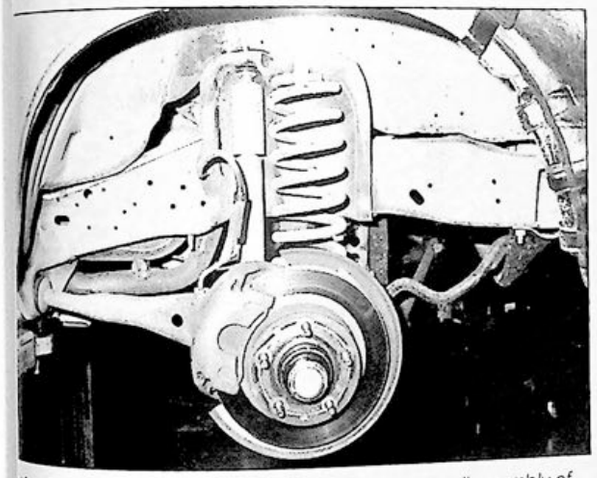
Here we have a group photo of the front and rear suspension components supplied by Bell Tech.



With the spindle removed, support the I-beam and relieve the tension on the spring. This procedure is critical to your health; relieve the tension carefully.

This truck cries for membership in TLC, the Too Low Club

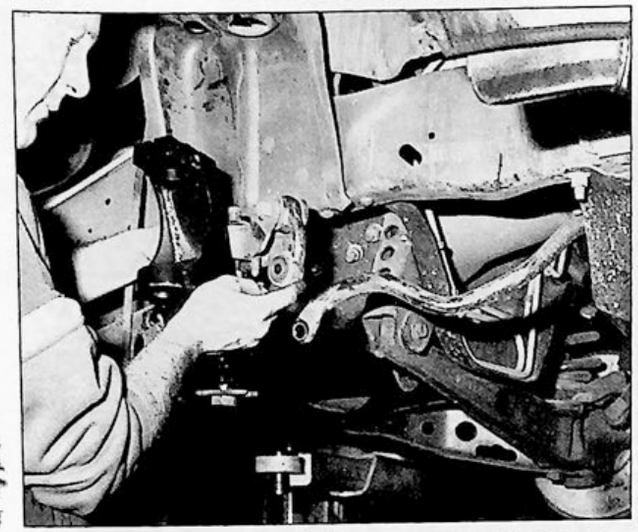
This is one of the last steps in the disassembly, removing the top shock mount nuts.



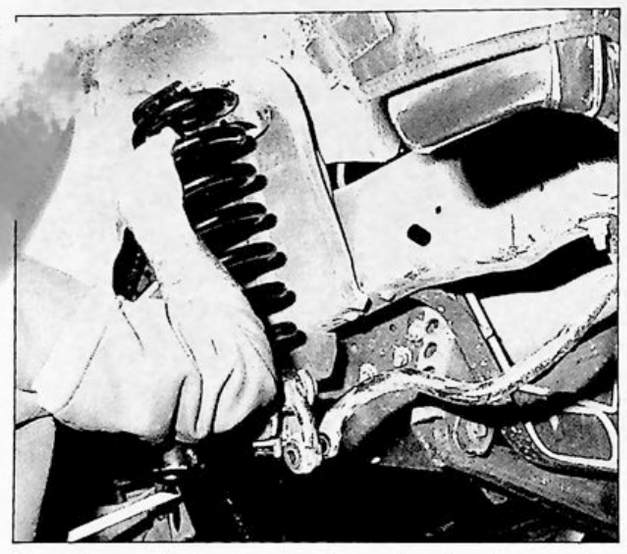
After removing the front wheels, Stillen continues the disassembly of the front suspension.

Roger extracts the cotter key as he prepares to separate the tie rod end from the spindle.

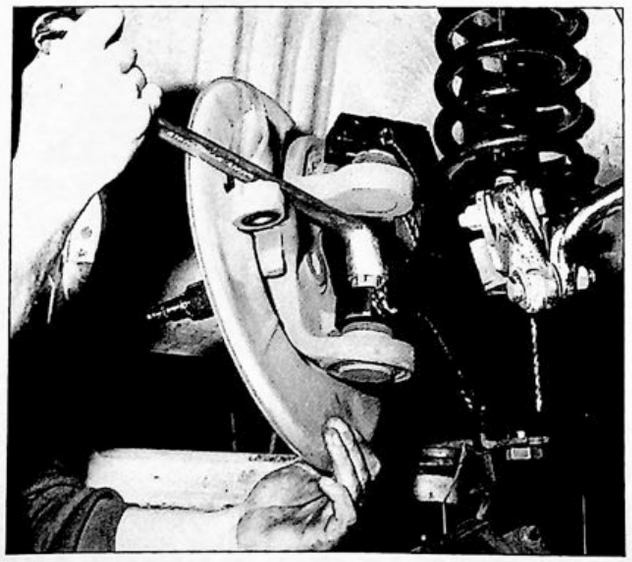
Following Bell Tech's instructions, Roger mounts their new I-beam, and tightens it to specification.



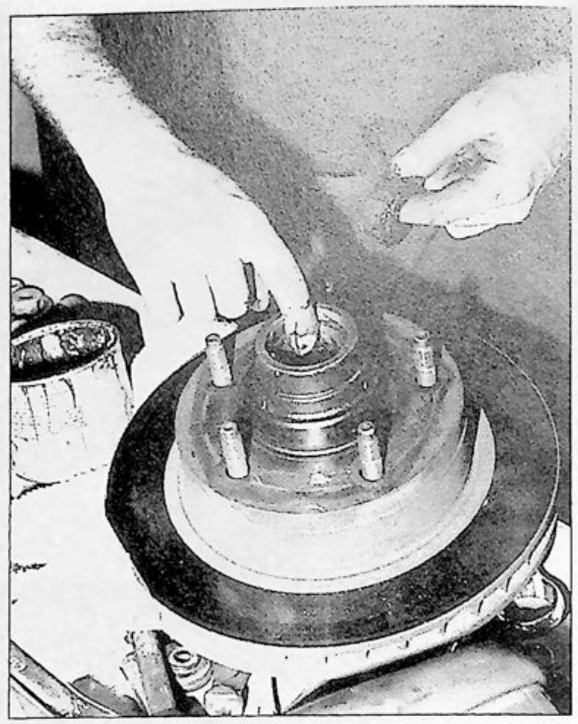
Roger, one of Stillen's expert technicians, moves through the procedure of bolting up our new I-beam to the radius arm pivot point.

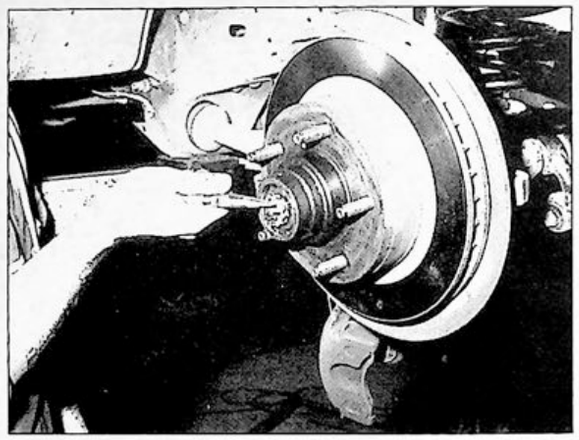


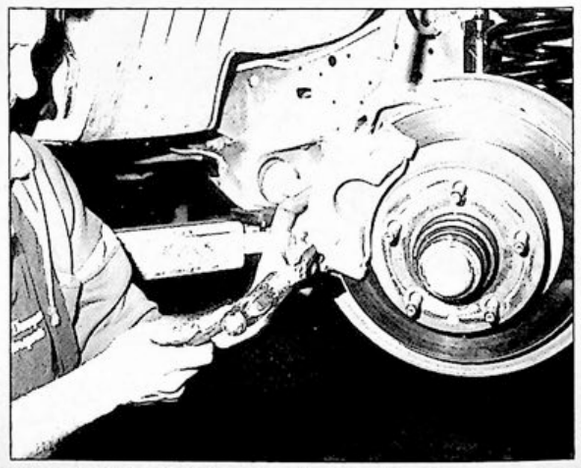
The coil-over springs can sometimes be a pain and require persuasion, as Roger muscles one into place.



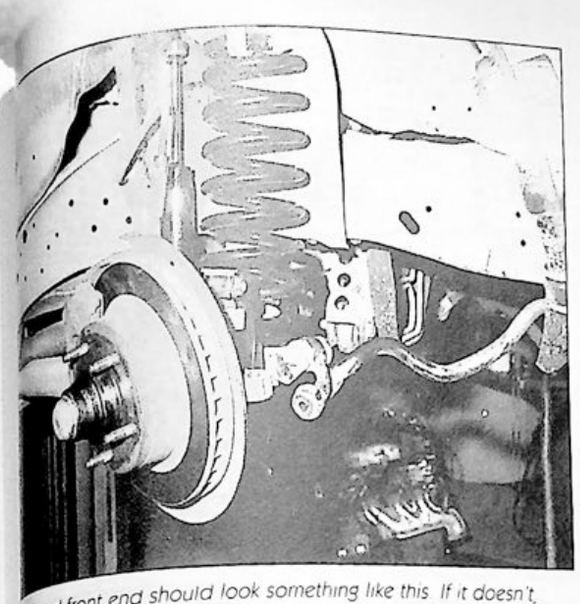
Roger lines up the OEM spindle and tightens the nuts on the tie rod.





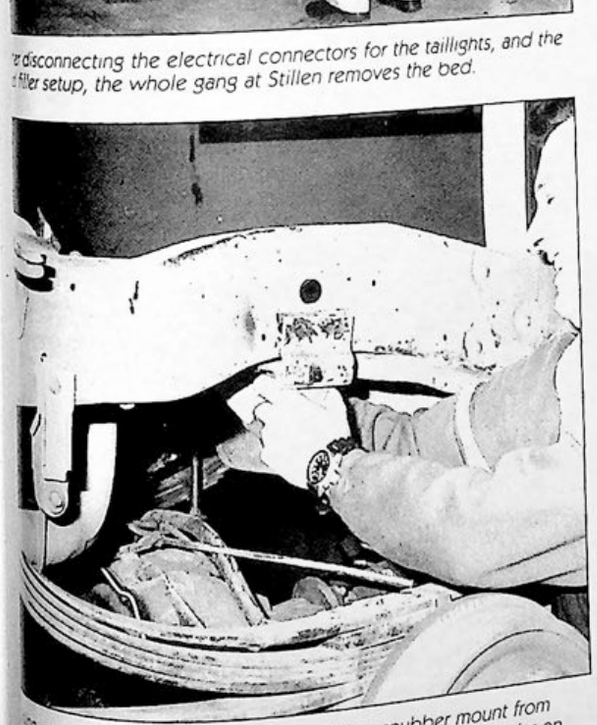


Before installing the rotor, check the wheel bearings to see if they are packed with grease. If needed, repack them. Roger refers to OEM specifications, and mounts the rotor and brake caliper.

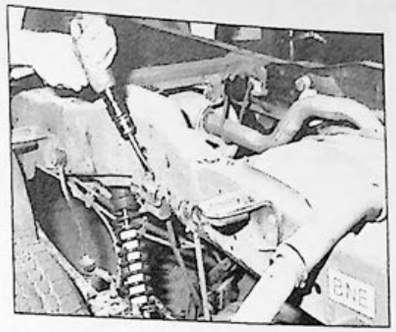


...inished front end should look something like this. If it doesn't, ...to the installation instructions and rerun through the procedures.

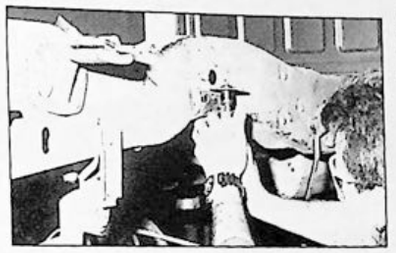
...r disconnecting the electrical connectors for the taillights, and the ...filler setup, the whole gang at Stillen removes the bed.

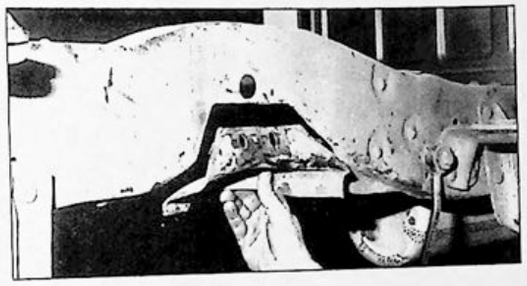


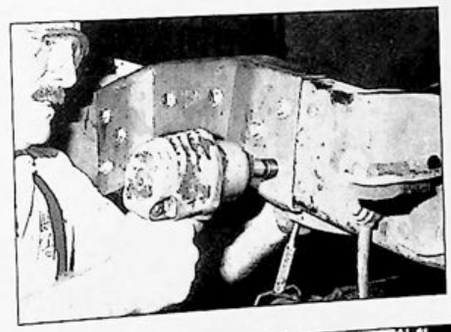
...g an air chisel Stillen removes the rubber snubber mount from ...frame. Another way of removing the rivets is to use a grinder on ...heads.



Roger carefully marks and cuts the "C" then lays in place the new C-notch section for drill marking. Never use a torch on your frame.







After drilling new mounting holes for the C-notch Stillen installs the new mounting bolts and torques them to spec...

As Stillen finishes the flip-kit, all that is left to do is grind off the excess bolt. If you have any question on this or any other Stillen product or service pick up the phone and give them a ring. They are real anxious to answer your questions or help in any way.

TANDEM YOUR MINI

A step-by-step example of how to add today's biggest modification craze to your truck

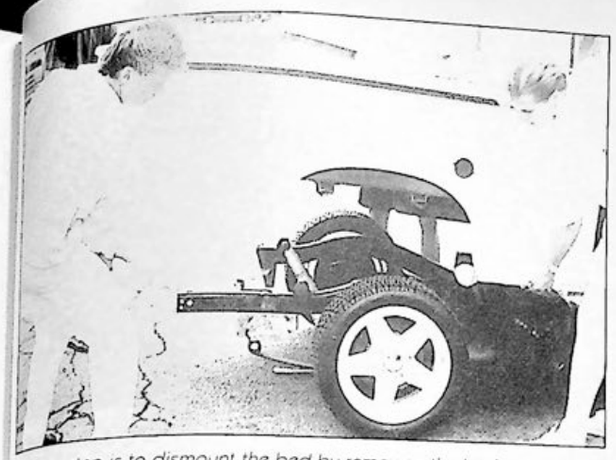
The awesome look of the tandem axle truck is very impressive indeed. With the right tools, materials and knowledge, you can have a radical tandem truck, if you have the guts!

BY BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK & ROGER PLANTE

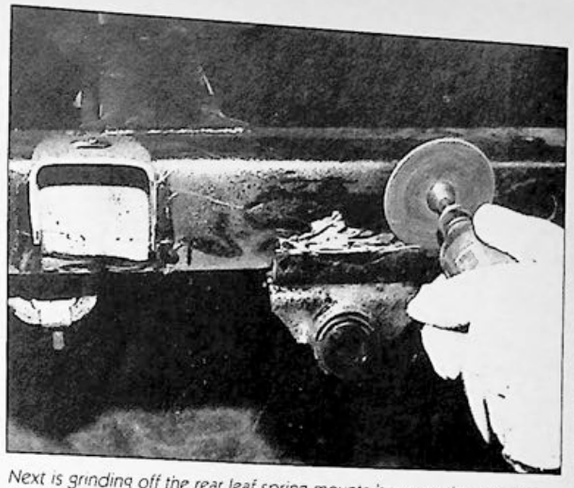
Whether mini or full size, every show truck has a body modification of some kind. From the smallest to the biggest, each is a personalized touch by the owner. Some of us just want our ride to be as different as possible, standing apart from the crowd is the "E" ticket these days.

One of the newest advancements in truck customizing and crowd appeal is the addition of a second axle. This trick custom feature is called a "tandem" and means one following or traveling behind another. Over the past few years, this creative addition has grown quite popular in the mini-truckin' scene. From the showroom to the local cruize spots, a tandem axle addition will undoubtedly give your truck a serious dose of public attention.

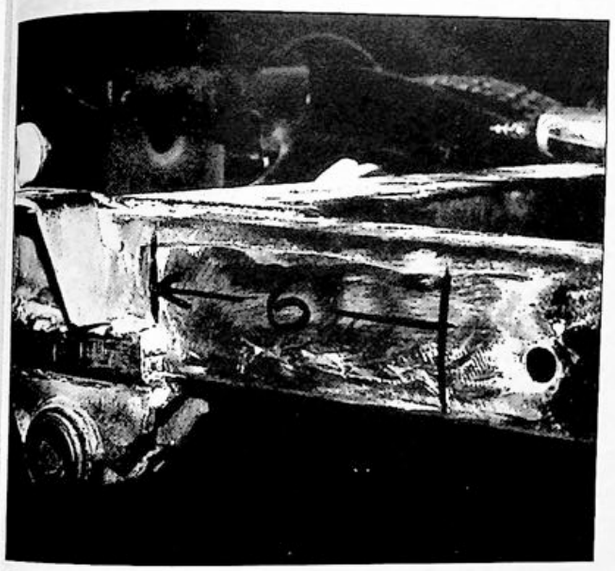
To better describe a tandem axle installation, we relied on the expertise of Concepts in Buena Park, Calif. Having constructed many tandem axle trucks and cars, Concepts got their hands dirty for us one more time by applying a tandem axle to a Nissan truck to demonstrate a step-by-step installation made easy.



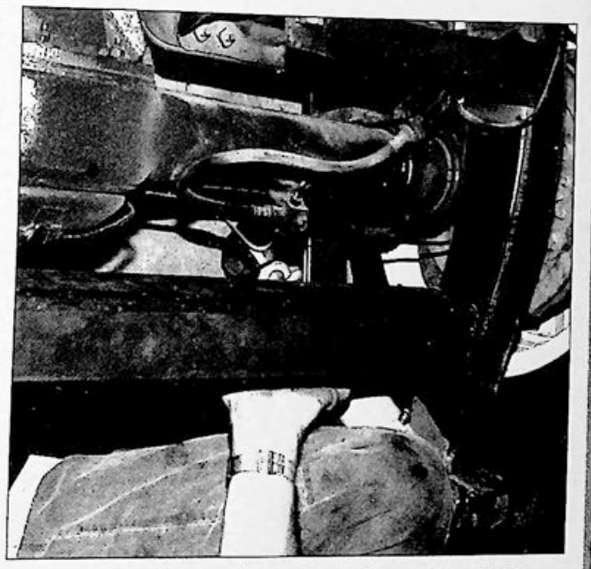
The first step is to dismount the bed by removing the bed mount bolts.



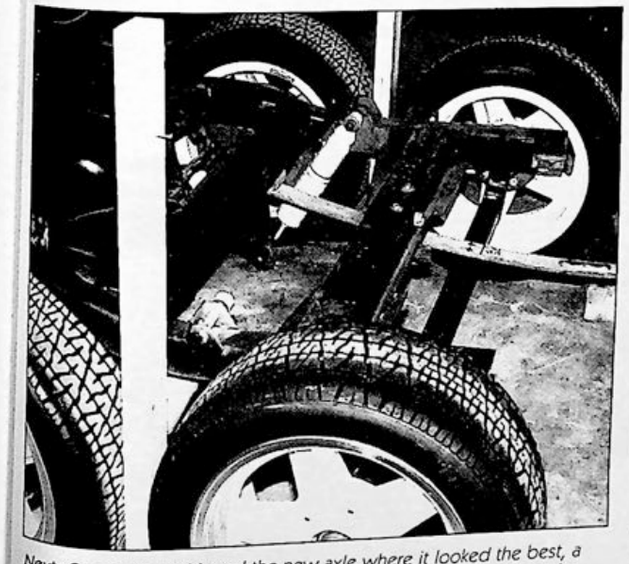
Next is grinding off the rear leaf spring mounts because the springs will be shortened to accommodate the new axle.



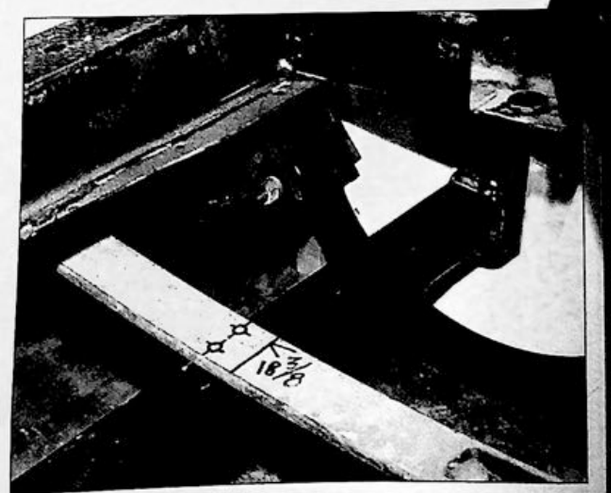
On this particular truck, the mount was moved six inches forward.



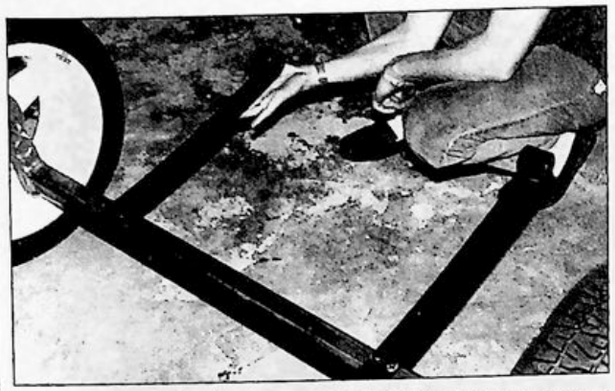
The inner distance between the two frame rails was measured so a new brace could be constructed of steel tubing.



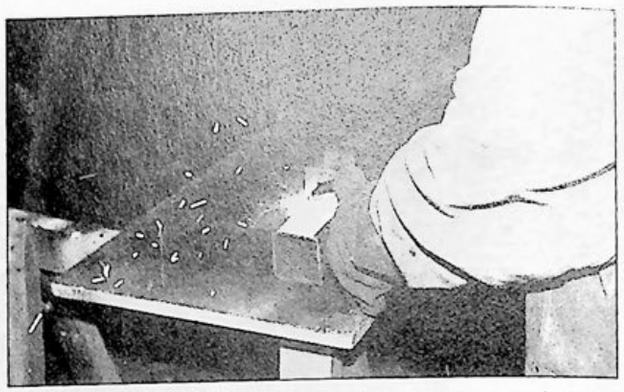
Next, Concepts positioned the new axle where it looked the best, a simple two inches was used in this case. The distance between the two axles can vary depending upon personal preference.



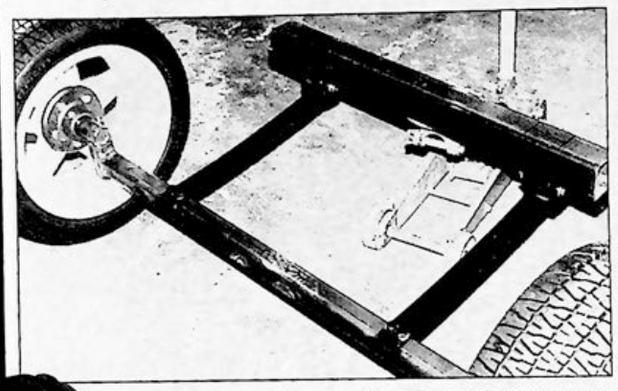
A strong leaf spring was then positioned in alignment with the original axle and lined up to mount on the new axle. No specific measurement is used.

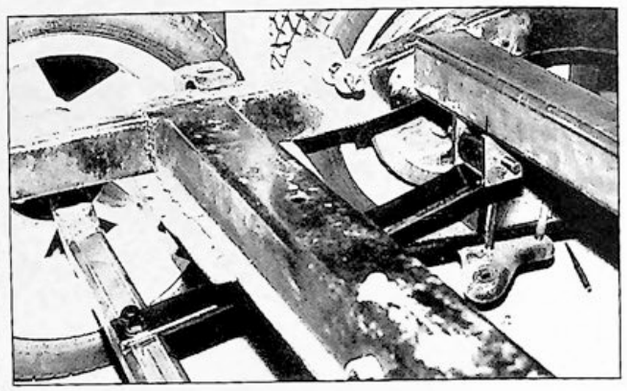


Eleven-and-one-half inches from center, determines the center-to-inner leaf spring side measurement. The leaf itself is 18 and three quarter inches long plus the diameter of the axle.

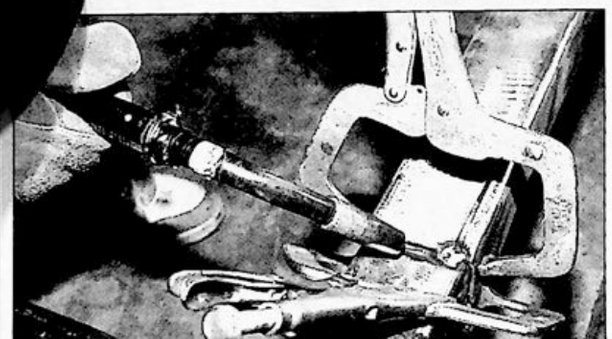


A mount was then made and welded onto the new brace so the new leaf spring can be attached.

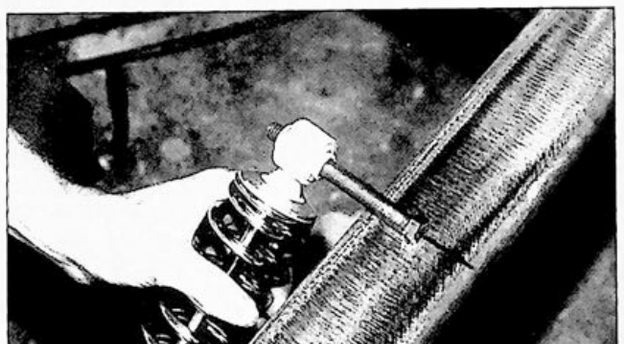




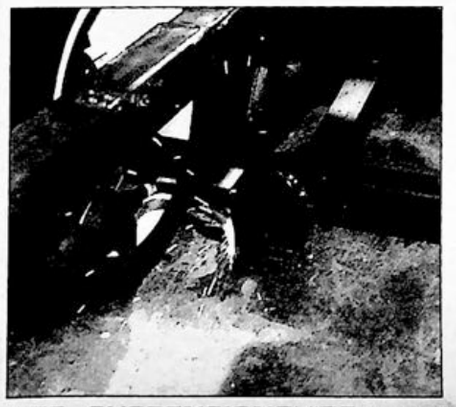
The new axle was repositioned to determine where the brace would be welded. Here we see the new brace in place and the new leaf spring attached onto it.



A frame extension was then attached onto the existing frame to support the lengthened bed. Bed length will vary depending on make, model and length of bed extension.

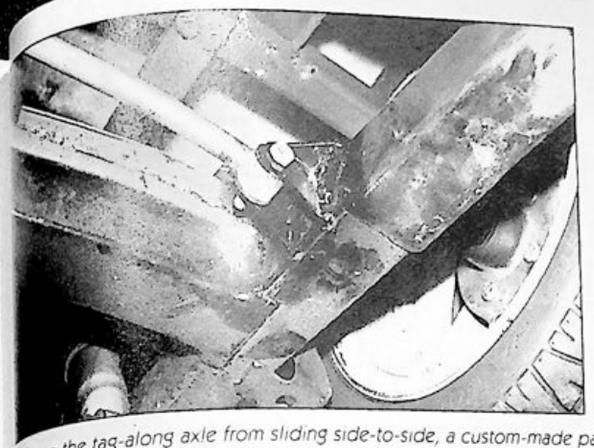


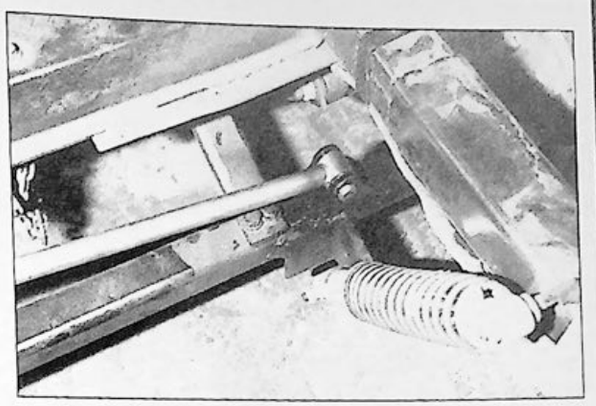
A coil-over shock is used here. The shock is then positioned in the same manner as the original rear shock.



New upper and lower shock mounts were then welded into place.

Here's a simple step! Attach the new shock.





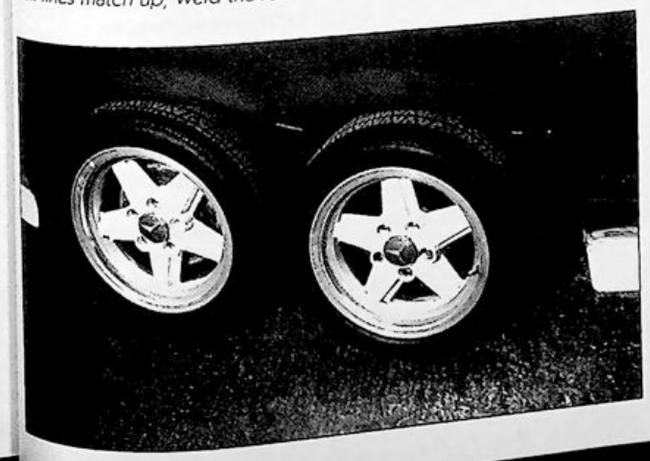
To keep the tag-along axle from sliding side-to-side, a custom-made panhard rod was installed. This component was attached onto the frame on the left side and attached onto the new axle on the right.

Now the frame assembly is complete. Not too hard, was it? But we're not finished yet.

This next step involves the use of two truck beds. After cutting off the rear section of the original bed behind the fenderwell and cutting the second bed in front of the fenderwell, both sections were attached and lined up to make a tandem bed.

If all lines match up, weld the rear section onto the original bed.

Grind down the welds and apply body filler as needed. Once filler is dry, sand body and inside of the bed for the cosmetic touches.



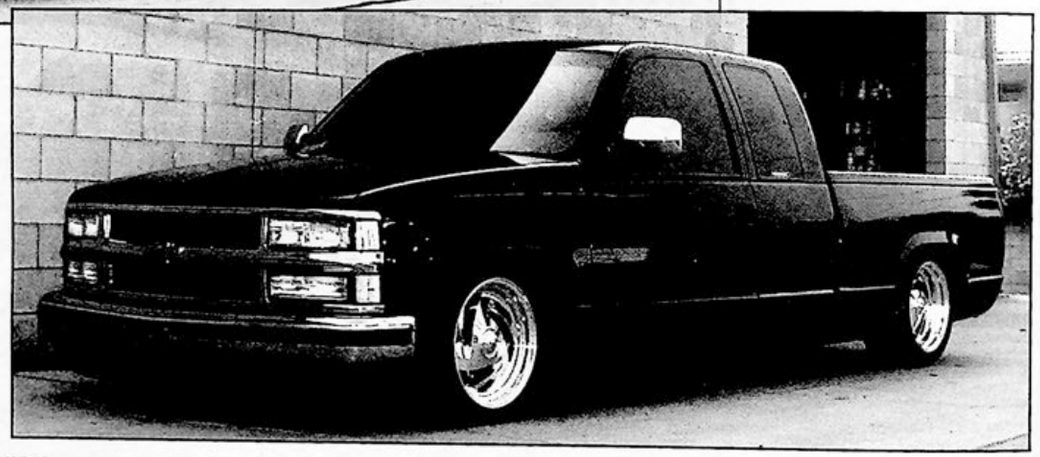
An awesome tandem complete and ready for paint. This particular owner preferred a teardrop style wheelwell, but any design can be incorporated. Use your imagination!

SUSPENSIONGUIDE SUSPENSIONGUIDE SUSPENSIONGUIDE

THE ULTIMATE DROP

A massive suspension drop that actually rides perfectly and functions better than stock

We began with a brand new 1994 Chevy Extended Cab, much like most of you have, then dropped it 8 and 10 inches over a set of trick 17-inch Budnik wheels and Dunlop tires. Precision Alignment and Rat's Automotive nearly redesigned the suspension with mostly bolt-on products to achieve this ultimate drop.



BRIAN McCORMICK
PHOTOGRAPHY: BRIAN McCORMICK

Lowering your truck is serious business. The days of torching springs and clamping coils are long gone, thankfully, and we are now able to have a lowered, or even slammed truck that actually rides great, maybe even better than stock.

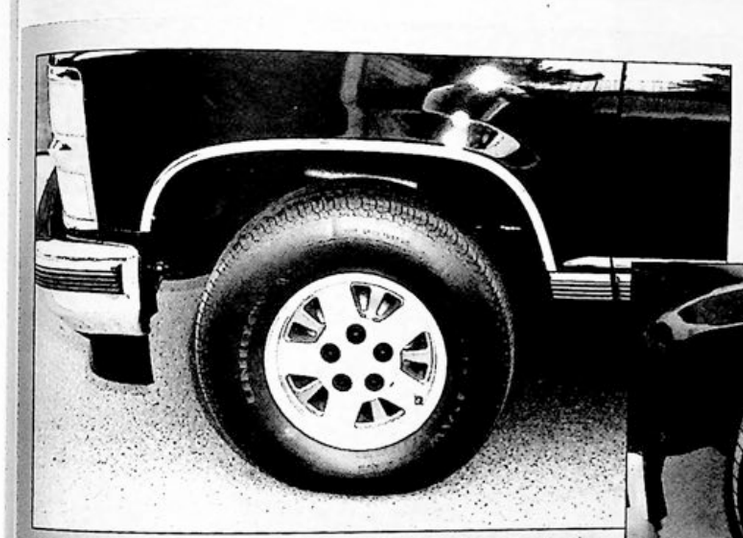
Constant advances in products and design technologies have created an improved approach to lowering. This special suspension guide from the editors of *Truckin'* magazine is devoted to showing the new enthusiast who has recently purchased a new Chevy truck how to lower his or her truck the right way. In addition, we will shatter the theory that a slammed truck rides like a chuck wagon with new ideas and installation methods that are on the cutting edge to show that being extremely low isn't a hassle and that you can actually still use your truck like a truck, even with it being lowered as much as ten inches in the rear and eight up front!

To best describe and perform such an installation we visited Jim Sleeper at Precision Alignment, the master of suspensions. Lowering trucks the right way has become an art form for Sleeper. A relentless effort to constantly improve any and all suspension conditions under a variety of applications is what makes Jim tick. And that's exactly why we wanted him to orchestrate the slamming of this '94 Chevy Extended Cab.

The process involved a host of applications that revolve around two things, to be reliable and functional. First off, the front independent suspension was treated to Bell Tech dropped spindles and Eibach four-inch lowered coil springs to start the drop sequence, then brought into perspective and proper geometry with specially modified lower control arms to bring the lower ball joint back into the parameters in which it is designed to function.

Over 50 percent of a truck's ride is determined by the shocks. You can beat around the bush all day and change shocks on a lowered truck every week as they blow out, or you can use the best lowered truck shock made. Koni has engineered a special shock just for lowered trucks that contains all

After the lowering treatment and intense installation procedures we ended up with a 10-inch drop in back with the 40-series Dunlops and Budniks, just enough to tuck tire and look cool.



The front received an 8-inch drop via spindles, springs, shocks and control arm mods to sit the nose down nicely from stock. The front air dam actually had to be cut in half to move the truck, and yes, it rides excellently!

of their legendary technology for maximum shock performance and control. The difference between the Konis and the average shock is like the difference between day and night!

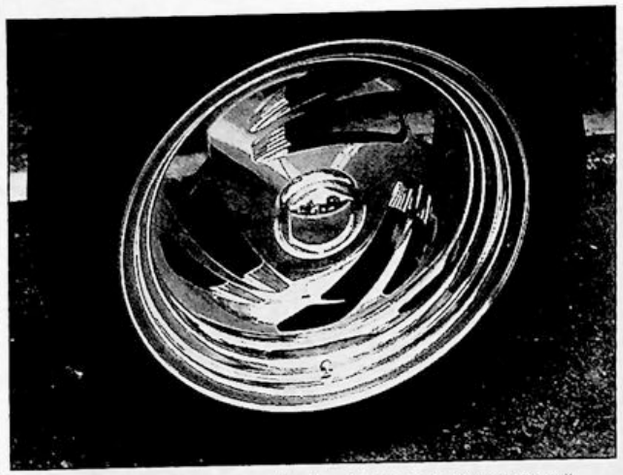
The rear suspension is a little more tricky as it poses obstacles that interrupt the lowering situation that we seek. To really get the truck low, the frame must be notched. Rat's Automotive has designed a totally awesome notch program that allows the frame to be notched all the way through except for about the top one inch of frame. A two-by-two steel connection bar is then welded to the top of the frame to support the notch with just enough room to clear the bottom of the bed.

The inside of the frame is then boxed from the cab crossmembers to the spare tire crossmember using thick 3/8-inch steel plate. The notch area is also boxed in for additional strength. A new 2x2-inch shock crossmember is then welded between the frame rails, just aft of the rear end housing since the shocks in their stock location will not work with the truck lowered as low as this. Trick high-tech Koni shocks are then attached in a coil-over shock fashion with the truck sitting at ride height to gain the most from the stock action.

The lowering is the product of a Bell Tech flip and relocater kit that produces a mean drop that can actually be adjusted to gain or retreat from the intial drop. This way, all of the stock leaf springs are retained with new polyurethane bushings installed. Bolt on the trick new 17-inch Budnik wheels with Dunlop 40-series rubber and this Chevy is immediately transformed into a low, mean, cruisin' machine.

The back end of this truck is now as much as three times as strong as it was stock, provides needed suspension travel clearance, retains proper function of suspension components, rides super and, following this installation, will be fitted with 3T's air bags so that this truck will be able to handle any payload or towing task with no worries. Yes, dreams can come true! For the interested, follow along and learn what Precision Alignment and Rat's Automotive did to create the ultimate drop.

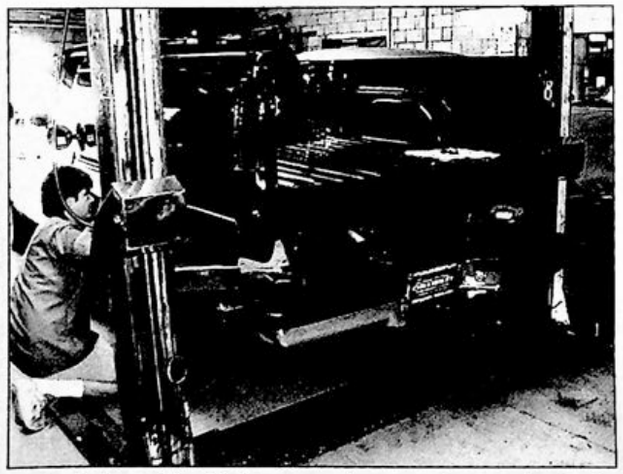
SUSPENSIONGUIDE SUSPENSIONGUIDE SUSPENSIONGUIDE



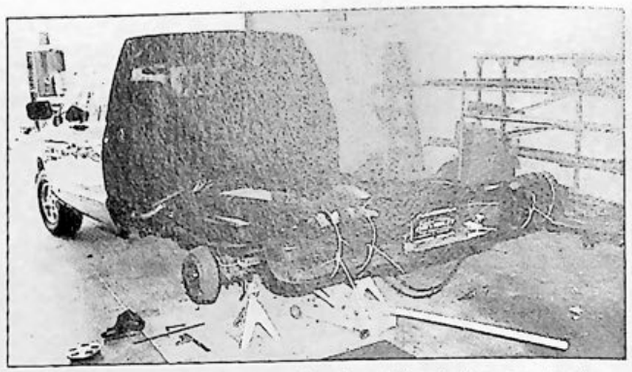
As you already are aware, our wheels of choice are 17-inch Budnik Switchblade billets with Dunlop Sport 8000 40-series rubber.

Budnik also has these trick new center caps for their wheels that add to the cutting edge look

Dunlop's new Sport 8000 tires are perfect for this custom Chevy with 245/40 and 275/40 series rubber in use.

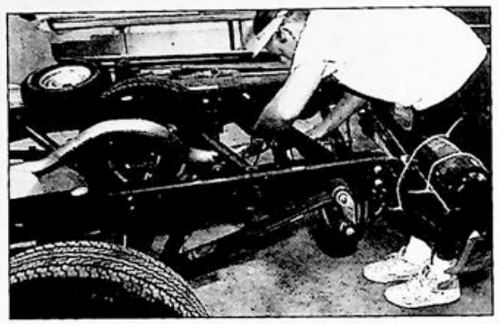


To begin, the truck bed had to removed to properly access the chassis.



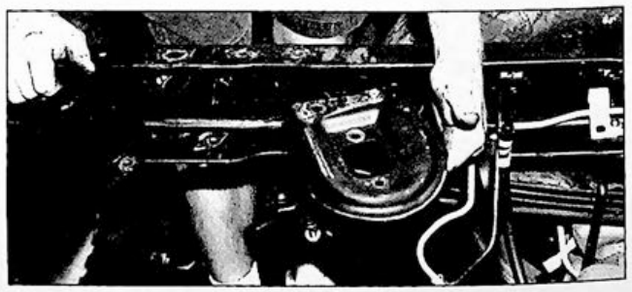
After properly supporting the truck with jackstands, the rear wheels were removed.

All of the brake and wire lines that run through the frame have to be moved before cutting on the frame.



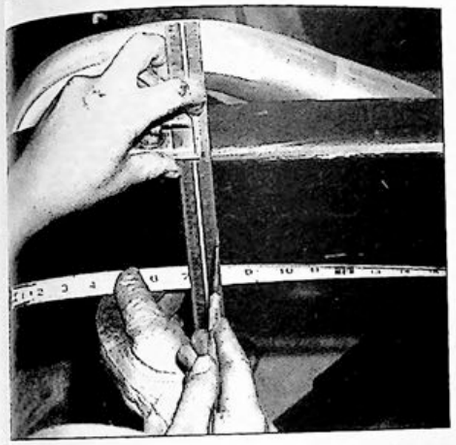
The spare tire locater also has to be removed for the time being

The factory bump stops have to be removed because this is where the frame notch will actually take place.



An air chisel is used to knock out the rivets holding the stock shock mounts.

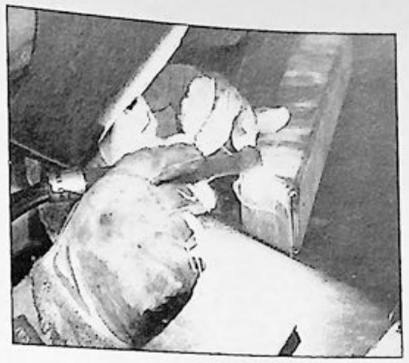
Jerry has a template to cut out both frame rail box plates which can be purchased from Rat's. Here Jerry test fits one of the 3/8-inch steel plates before the boxing can begin.



To begin the notching, first the centerline of the axle travel must be found.

Three inches either side of the center line scribe is marked as shown for the diameter of the notch

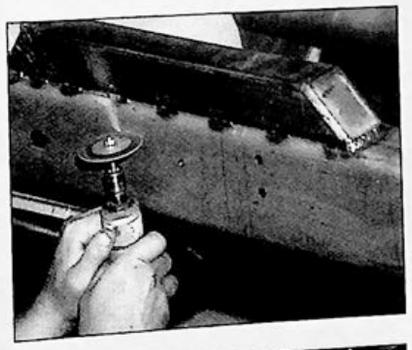
GM's careful anti-corrosion policies have led to the coating of the entire chassis with wax-based sealer that must be removed from the frame before any cutting or welding can begin.



A 2x2-inch steel tube nearly twenty inches long with 45-degree tapered and capped ends is welded together. This will be welded to the top of the frame to support the notch.

All of the welding done at Rat's is heli-arc for maximum penetration and strength. This strength bar must be welded onto the frame before the notch can be made

Stitching the welds an inch apart and an inch long is the best way to weld the bar onto the frame. Now we are ready to notch the frame.



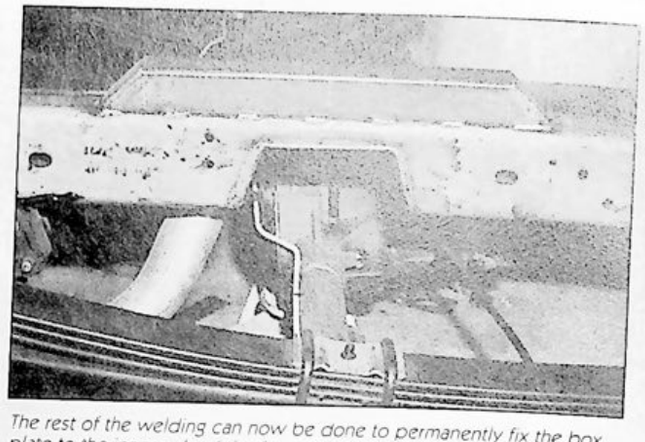
Following the scribe marks made earlier, a cutting wheel is used to cut out the section.

It is important the cut edges b as straight as possible.

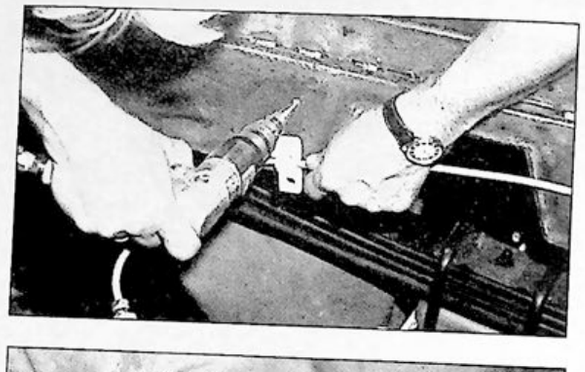
Clamp the box plate in place on the inside where it will be welded into place, then the inside notch area is marked off so that this section can be removed from the box plate.

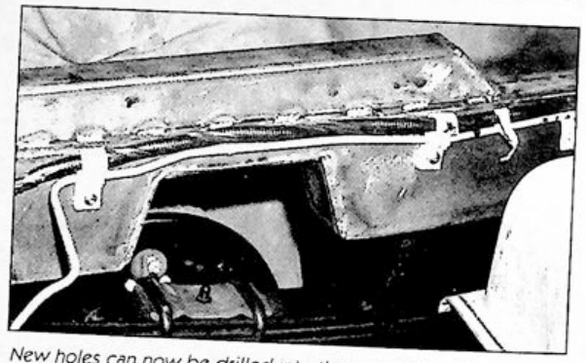
The box plate can now be tacked into place. The final welds will be done after the notch is done

Small plates are carved to fit the three sides of the notch to complete the boxing effort and add further strength.

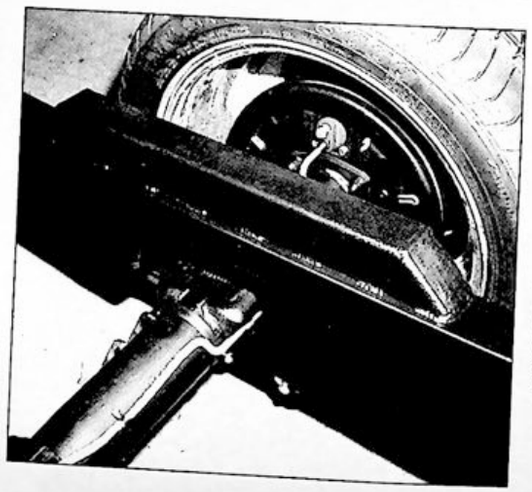


The rest of the welding can now be done to permanently fix the box plate to the inner side of the frame. This is what we end up with. It is as strong if not stronger than the stock frame alone and now we have increased axle clearance.



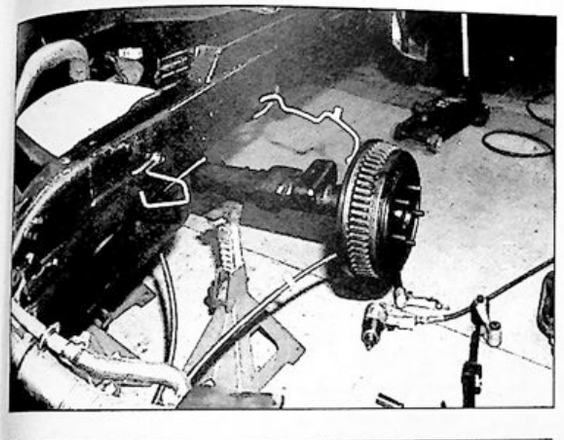


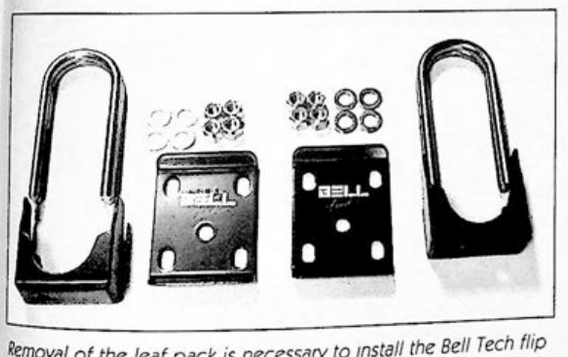
New holes can now be drilled into the new plate side to mount the brake lines and wiring looms.



This is a shot of the passenger side after some of the welds have been smoothed and a fresh coat of satin black is applied to the frame.

...t, Jim Sleeper stepped in to begin the lowering stages. Here is the ...k position of the rear end mounted under the leaf pack





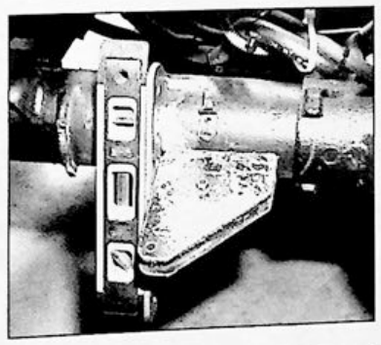
Removal of the leaf pack is necessary to install the Bell Tech flip kit which will drop the truck roughly four inches.

Here is the rear end after the installation of the flip kit. To gain even more lowering depth, a rear hanger relocater was installed as well.

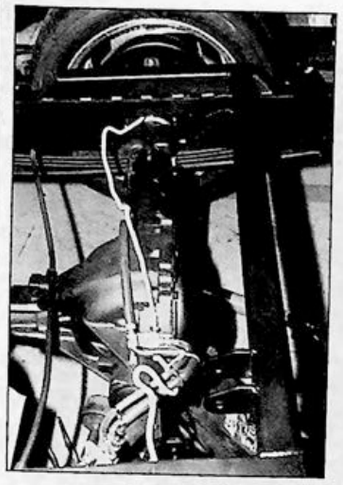
Next comes the installation of the new shock crossmember that Jerry and Jim teamed up to design that positions the new Koni performance shocks in a location that makes them work properly.

The 2x2-inch crossmember is then welded directly to the frame

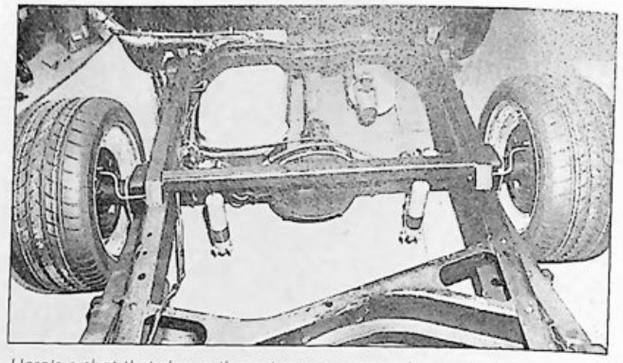
Mounting tabs are then welded as shown to position the shocks aft of the rear end in typical performance fashion.



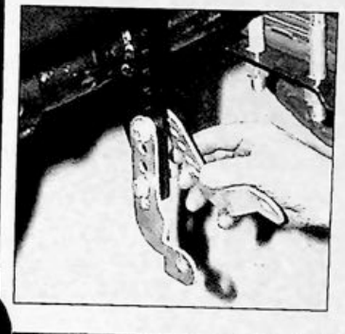
Removal of the stock shock mounts on the rear end is mandatory so that the new Chassis Engineering adjustable shock brackets can be welded to the rear end housing.



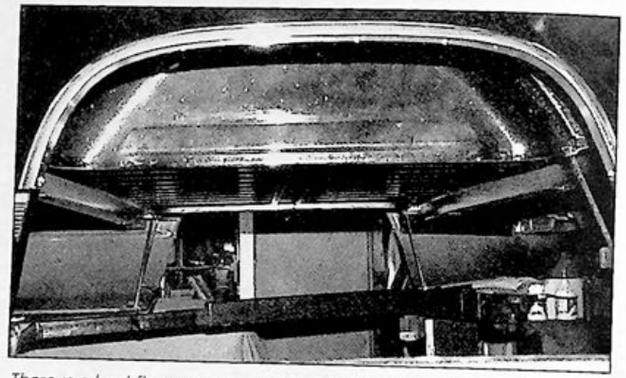
And there we have the new shock mounting system ready to accept the new Koni shocks.



Here's a shot that shows the entire rear suspension and chassis project which is the cornerstone for making this truck slammed, strong, reliable, smooth riding and efficient.

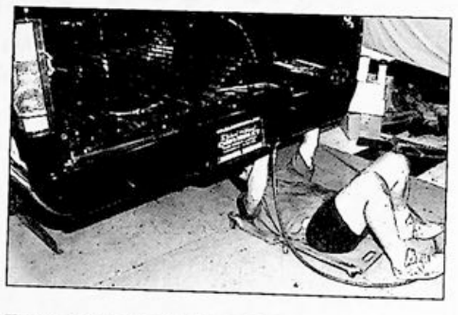


The shocks will be fully adjustable for height using these cool Chassis Engineering brackets.

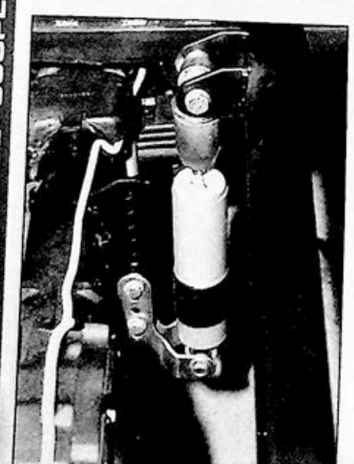


There is a bed floor support beam that runs from side-to-side right over the rear end housing; this must be removed before the bed can be reinstalled.

The Koni shock is now installed as shown. Notice the shock is 90-degrees square to the rear end.



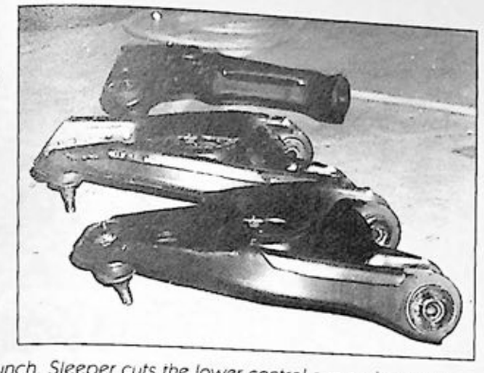
Line the bed back up and install the hardware that mounts the bed, fuel neck and rear lighting.



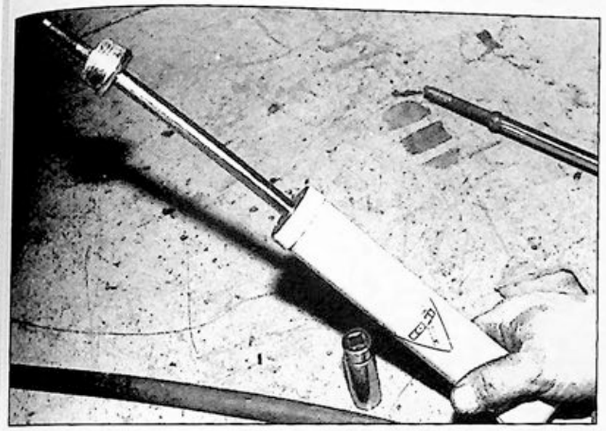
Believe it or not, the truck is sitting at ride height. The stock shock would be nearly lateral to the ground and be as effective as a paper bag. But, by creating this shock setup, we have installed proper ride and geometry.

To lower the front, Bell Tech dropped spindles, Eibach four-inch lowered coil springs, Energy Suspension bushings and Koni adjustable shocks were installed.

Sleeper has a trade secret he uses to make lowered trucks ride properly and perform as they were designed. After installing the previously mentioned products, the lower ball joint angle is totally out to lunch. Sleeper cuts the lower control arm and sections the ball joint plate back into the parameters for which it was designed to operate. This is key!

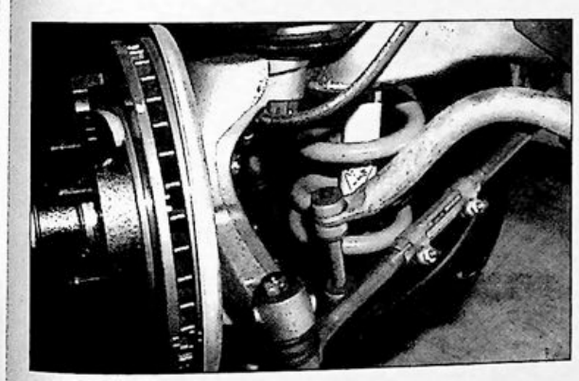


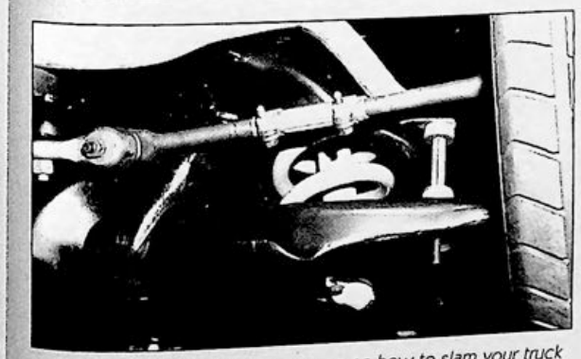
Since the wheels now tuck into the fenders, it is important that you roll the inner fender lips. Jim has mastered this technique that requires skill to perform. Children, do not try this at home.



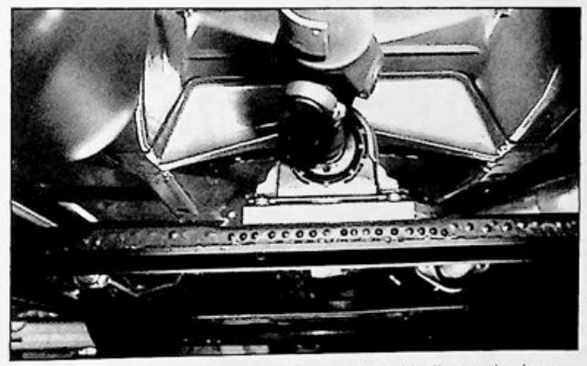
Koni has designed these new adjustable shocks exclusively for lowered Chevy trucks. They work like no other shock on the market.

Now the cool Budnik wheels and Dunlop rubber can be bolted on.





And there we have the inside scoop on how to slam your truck using bolt-on products with a little modifying bringing the scenario back into perspective. Trust me, this setup rides nearly as nice as it did stock.

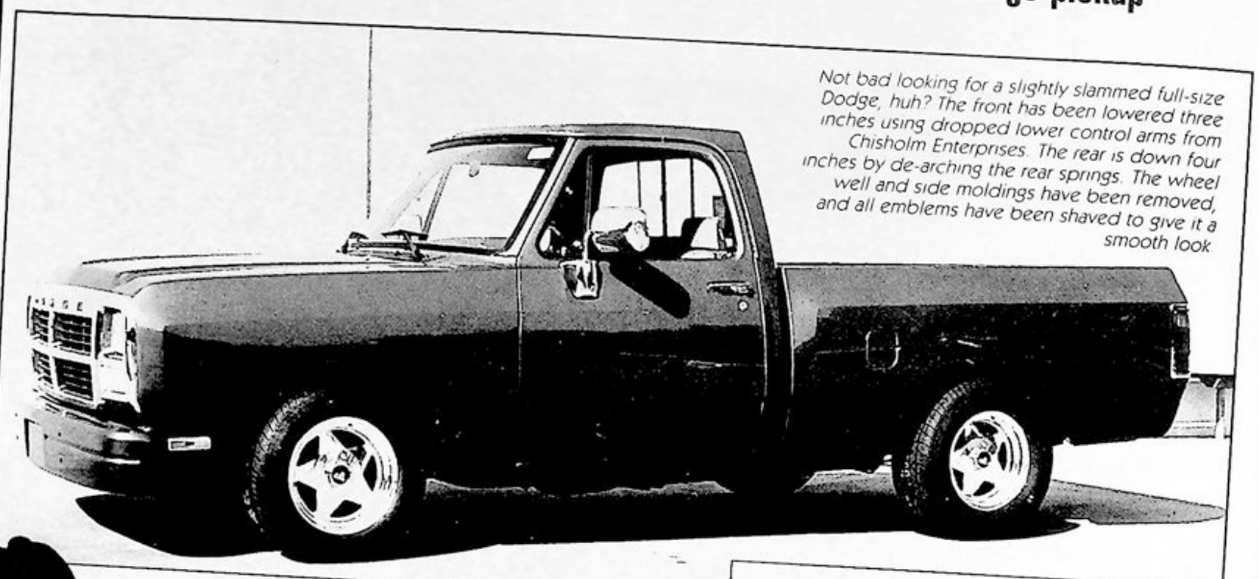


Since we have seriously dropped this truck, the driveline angles have changed outside the limits of acceptable geometry. Precision Alignment installs a 1-1/9-inch spacer under the carrier bearing to bring the driveshaft back into tolerance.

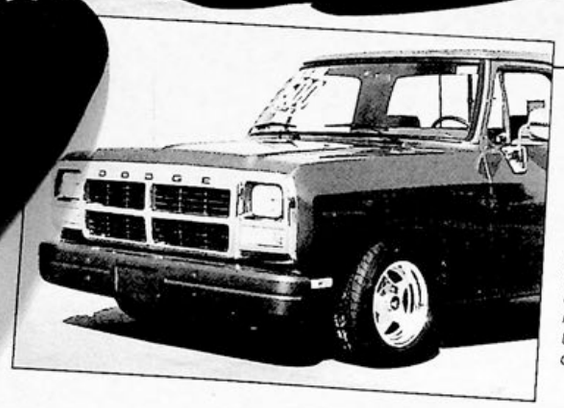
No lowering job would be complete without a good alignment. Precision Alignment is the best in the business and checks every possible parameter.

LOW DOWN DODGE

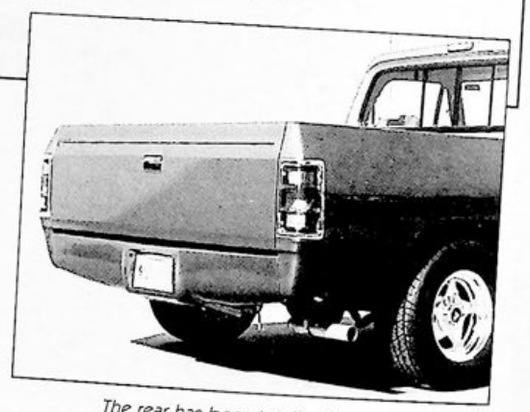
Precision Design & Manufacturing customizes a full-size Dodge pickup



Not bad looking for a slightly slammed full-size Dodge, huh? The front has been lowered three inches using dropped lower control arms from Chisholm Enterprises. The rear is down four inches by de-arching the rear springs. The wheel well and side moldings have been removed, and all emblems have been shaved to give it a smooth look



The front bumper was de-chromed, the holes filled and painted to match the body color. Grille inserts were also painted body color. This treatment really helped enhance the appearance of the front end.



The rear has been totally changed in appearance with the new roll pan and tailgate filler panel, just developed by Precision Design & Manufacturing.

BY BILL TURNER
PHOTOGRAPHY: BILL TURNER

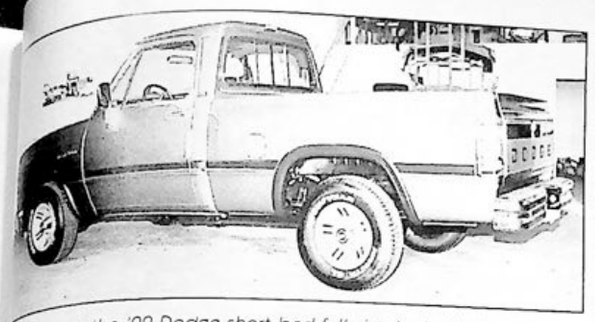
Robert of Precision Design & Manufacturing Inc. decided he wanted his company to make aftermarket bolt-ons for the full-size Dodge trucks. Robert decided to try a market that has not been tried since the glory days of the aftermarket van craze of the late Seventies: Mopars.

The Dodge van was the popular van used during those times. Not so with the pickup market as the full-size Chevy truck has completely dominated the sport truck world, and everyone manufactures aftermarket parts for them. Precision Design & Manufacturing manufactures parts for the full size GMs also, but Robert wanted to try out the Dodge market, since it hasn't been tested yet.

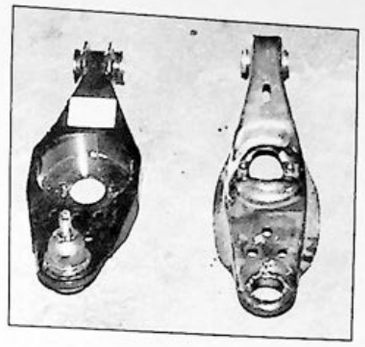
Robert called a good friend Jack (the Magic Man) Rockwell, the owner of Whittier Dodge, and ran his idea past him. Jack loaned Robert a truck to use for the prototype buildup, to be sold by the dealership when finished.

Once the truck was at Precision Design & Manufacturing the first order of business was to figure out how low they wanted it to be, and how they were going to accomplish this. They decided to lower the front three inches using drop lower control arms from Chisholm Enterprises. The decision for the rear was to de-arch the springs enough to lower it four inches.

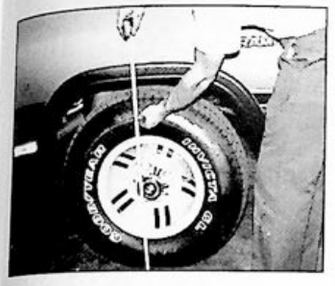
A wheel and tire change was a must, so they chose to use a set of Progressive Billet wheels shod with BFGoodrich rubber. The truck was also to be completely de-chromed for the smooth look. Robert also took this opportunity to develop a rear roll pan, tailgate filler panel, and a hidden hitch for the Dodge, as you can see in these photos!



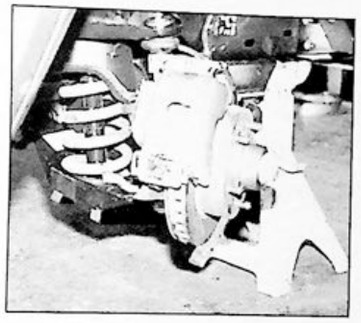
This is the way the '92 Dodge short-bed full-size looked when I first saw it at Precision Design & Manufacturing: a Plain-Jane stocker at nose and altitude.



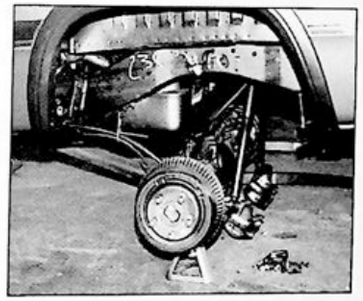
Robert chose to use the new two-inch dropped pocket lower control arms from Chisholm. The new arm is on the left. Note the differences between the arms.



Before they started to tear the truck apart, Robert and his employee Mike took measurements of the stock ride height and discussed how low they wanted to go. They agreed on three inches in the front and four inches in the rear.

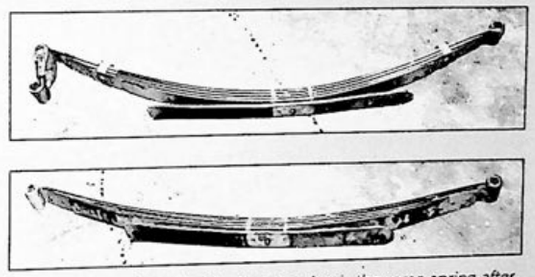


Here's the front suspension re-assembled with the new lower control arms.

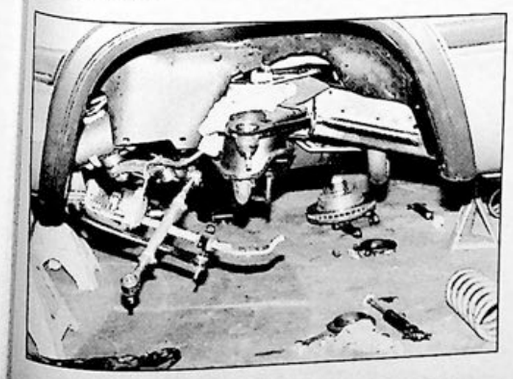


This is what the rear suspension looked like after the springs were removed for de-arching.

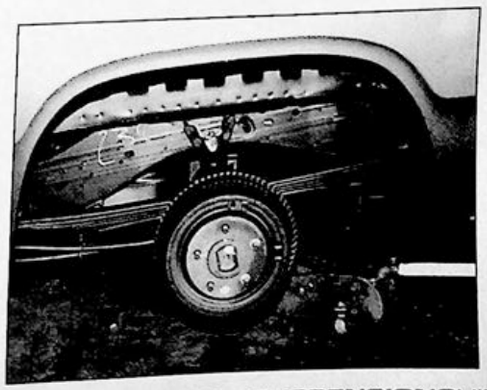
The next time we saw the Dodge it was up on jack stands and the lower control arms were already out of the front and the rear springs had been removed. Robert told us they were also going to de-chrome the entire truck.



The top spring is stock. The lower spring is the same spring after it had been de-arched. The spring was de-arched enough to lower the rear of the truck four inches.

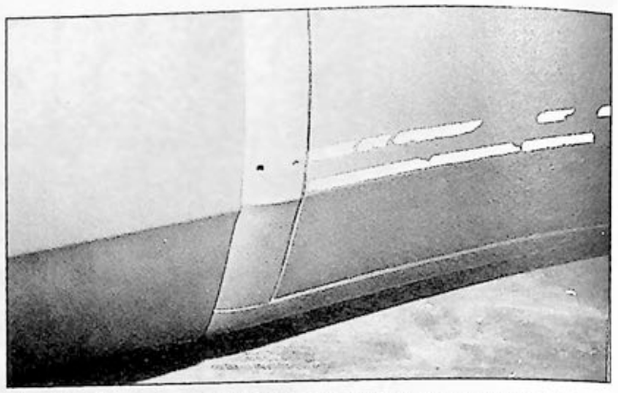


This is what the front suspension on the Dodge looked like while awaiting the new Chisholm Enterprises lower control arms.



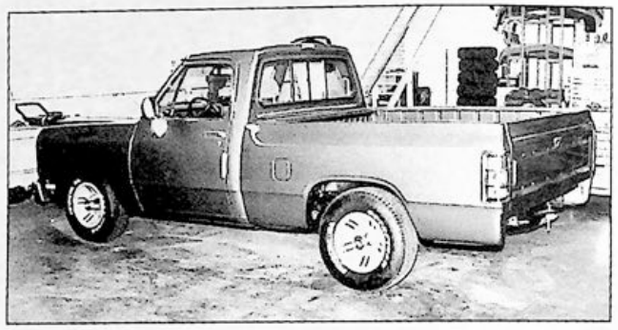
With the rear springs reinstalled you can see how much arch has been taken out of them by how flat they look.

This is what Robert discovered when they pulled the cover off the tailgate: tons of holes. Robert has designed two tailgate filler panels; one is a weld-in and the other is a stick-on. The rear bumper was also removed. Robert has designed a roll pan and a hidden hitch for the rear.

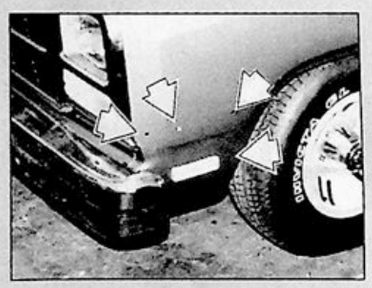


The side trim pieces on the lower portion of the B-pillars were also bolted on and left these two large holes behind when removed

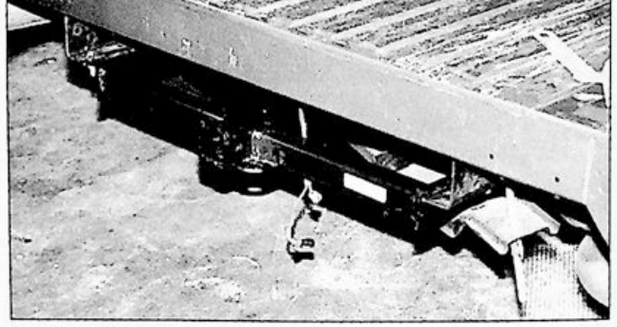
This is what the front end of the Dodge looked like before Robert removed all the unnecessary trim.



Dropped and ready for paint. The truck was sent out to have the holes filled, the tailgate skin installed, and the new rear roll pan painted.



Robert removed the factory bumper cover with the built in overriders. The side trims and wheel well moldings were also removed from the front fenders. Unfortunately the front piece of side trim and the wheel well moldings left holes in the fenders (see arrows). The Ram-150 emblems were also removed.



This the hidden tow hitch; it's a bolt-in without drilling any holes.

The LE emblems on the B-pillars met the same fate.

The new roll pan and tailgate filler panel look great. What an improvement! Robert also installed one of their flip-up license plate brackets into the roll pan for that finishing touch.